

The LADIES' Diary: OR

WOMAN'S ALMANACK,

For the Year of our LORD 1800;
Being the Fourth after BISSEXTILE, or LEAP-YEAR,

According to the ACT of Parliament in that Case made 1751.

Containing New Improvements in ARTS and SCIENCES,
And many Entertaining PARTICULARS:

Designed for the Use and Diversion of the

FAIR-SEX.

The Ninety-seventh ALMANACK Published of this Kind.



VIRTUE and SENSE, with FEMALE SOFTNESS join'd,
(ALL that subdues and captivates Mankind,) 9
In BRITAIN's Matchless FAIR resplendent王
THEY rule LOVE's Empire by a Right Divine :
Justly their Charms the astonish'd World admires,
Whom Royal CHARLOTTE's bright Example fires.

L O N D O N ,

PRINTED for the COMPANY of STATIONERS,

By M. Brown, St. John's-square, Clerkenwell;

And sold by G. GREENHILL, Treasurer, at their Hall in Ludgate-Street.

[Price stitched, SIXTEEN-PENCE.]

CHRONOLOGY of REMARKABLE EVENTS.

1800.

Y. of Christ.	Ys. since.	Y. of Christ.	Ys. since.
1600 King Charles I. born	200	1714 Q. Ann died, K. Geo. I. succ.	86
1603 Q. Eliz. died, K. Ja. succ.	197	1715 Rebellion in the north	85
1603 A great Plague in London	197	1716 A very great frost	84
1605 Popish Gun-powder Plot	195	1726 Sir Isaac Newton died	74
1616 Shakespeare the poet died	184	1727 K. Geo. I. died, Geo. II. succ.	73
1625 K. James died, Cha. I. succ.	175	1739 War against Spain declared	61
1641 Bloody Irish massacre	159	1739 A very great frost	61
1642 Sir I. Newton born, Dec. 25	158	1743 A great comet appeared	57
1649 K. Charles I. beheaded	151	1744 War against France declared	56
1658 Oliver Cromwell died	142	1745 Rebellion in Scotland	55
1660 K. Charles II. restored	140	1748 A general peace	52
1662 Royal Society instituted	138	1750 Westminster bridge finished	50
1665 Died of the plague 68,586	135	1752 Date and Calendar altered	48
1666 Great fire in London	134	1756 War against France declared	44
1666 War against Denmark decl.	134	1760 K. Geo. II. died, G. III. succ.	40
1667 Peace with Hol. Fr. & Den.	133	1762 American philos. soc. instit.	38
1672 War against Holland decl.	128	1762 War against Spain declared	38
1672 Halfpence & Farth. coined	128	1763 Peace with France & Spain	37
1674 Peace with Holland procl.	126	1765 Otaheite discovered	35
1679 Habeas Corpus act passed	121	1770 Blackfriars bridge finished	30
1685 K. Cha. II. died, Ja. II. succ.	115	1772 A revolution in Denmark	28
1688 Prince of Orange landed	112	1772 A revolution in Sweden	28
1688 K. James II. abdicated	112	1775 War against America begun	25
1689 Wm. and Mary crowned	111	1776 America declared independent	24
1693 Hackney coaches established	107	1778 French treaty with America	22
1702 K. Wm. died, Q. Ann succ.	98	1778 War against France begun	22
1702 War against France declared	98	1779 War against Spain begun	21
1707 England & Scotland united	93	1780 War against Holland begun	20
1713 Peace with France procl.	87	1783 A general peace	17

BIRTH-DAYS, [N. S.] and YEARS, of the ROYAL FAMILY of GREAT BRITAIN.

KING GEORGE III. June 4, 1738	Prince Adolph. Fred. Feb. 24, 1774
Prince of Wales, August 12, 1762	Princess Mary, April 25, 1776
Duke of York, August 16, 1763	Princess Sophia, Nov. 3, 1777
Duke of Clarence, Aug. 21, 1765	Princess Amelia, Aug. 7, 1783
Duchess of Wtrem. Sept. 29, 1766	Queen Charlotte, May 19, 1744
Duke of Kent, Nov. 2, 1767	Duchess of Brunsw. Aug. 11, 1737
Prs. Augusta Sophia, Nov. 8, 1768	Duke of Gloucester, Nov. 25, 1743
Prs. Elizabeth, May 22, 1770	Princess of Wales, May 17, 1768
Duke of Cumberland, June 5, 1771	Duchess of York, May 7, 1767
Prince Aug. Fred. Jan. 27, 1773	

YEARS of BIRTHS of the Principal SOVEREIGN PRINCES of EUROPE.

Victor Amada Maria, K. Sardinia	William V. Stadtholder, - 1743
Paul I. Emperor of Russia, 1754	Charles, IV. King of Spain, 1748
Maria, Queen of Portugal - 1734	Christian VII. K. of Denmark, 1749
Frederic V. King of Prussia, 1770	Ferdinand IV. King of Sicily, 1751
Gustavus IV. King of Sweden, 1778	Selim III. Grand Seignor - 1761
Francis II. Emp. Germ. - 1767	

Nº 97. January hath xxxi Days.

3

First Quarter, 2d, 51m. past 10 night.
 Full Moon, 11th, 10m. past 2 morn.
 Last Quarter, 18th, 42m. past 7 morn.
 New Moon, 25th, 8m. past 3 morn.

Sun enters $\text{\textcircled{A}}$
 19d. 16h. 58m.

1	W	Circumcision	8	5	3	55	23	8	1	11	a	1	6
2	TH		4		56		22	56		morn			7
3	F		4		56			50	0	13			8
4	S	[Old Christmas Day]	3		57		44	1	23				9
5	B	2 Sunday after Christmas	2		58		37	2	33				10
6	M	Epiphany Twelfth-day	1		59		30	3	44				11
7	Tu		0	4	0		23	4	56				12
8	W	Lucian	0		0		15	6	6				13
9	TH		7	59	1		6	7	9				14
10	F		58		2	21	57	D	rises				15
11	S	[Old New-Year's day]	57		3		48	4	a	10			F
12	B	1 Sunday after Epiphany	56		4		39	5	27				17
13	M	Plough M: Hilary. C.T.b.	54		6		28	6	48				18
14	Tu	Ort. Term begins	53		7		18	8	8				19
15	W		52		8		7	9	30				20
16	TH		51		9	20	56	10	50				21
17	F	Old Twelfth Day [Prisca]	50		10		44	morn					22
18	S	Qu. Char. birth day kept	48		12		32	0	14				23
19	B	2 Sunday after Epiphany	47		13		19	1	41				24
20	M	Fabian. Hilary T. 1 re.	46		14		7	3	9				25
21	Tu	Agnes	44		16	19	53	4	38				26
22	W	Vincent	43		17		40	6	1				27
23	TH	Hilary Term begins	41		19		26	7	8				28
24	F		40		20		11	D	sets				29
25	S	Conversion of St. Paul	38		22	18	57	4	a	32			N
26	B	3 Sunday after Epiphany	37		23		42	5	56				1
27	M	Pr. Augustus Freder. born	35		25		26	7	15				2
28	Tu	[Hilary 2 re.]	34		26		11	8	33				3
29	W		32		28	17	55	9	45				4
30	TH	K. Charles I. mart. 1649	31		29		38	10	57				5
	F		29		31		21	morn					6

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun	East	Cl. bef. S.	7 Stars	So.
1	7	50	0	6	6	0	4	41	2 ¹
2	6	58	14	5	58	2	43	6	19
3	1	8	6	22	54	6	46	8	23
4	6	18	34	49	11		49	10	13
5	1	32	48	44	16		53	11	46
6	6	46	1	2	38	22	58	13	0

First Quarter, 1st, 24m. past 8 night.

Full Moon, 9th, 10m. past 5 aftern.

Last Quarter, 16th, 35m. past 3 aftern.

New Moon, 23d, 54m. past 4 aftern.

Sun enters Δ

18d. 7h. 44m.

M	W	Sundays, Holidays, &c.	Sun rises	Sun sets	Sun's decl.	D rises & sets	D' Ags
D	D						
1	S		7 27	4 33	17 8 5	0 m 7	7
2	E	S. a. Epiphany: Purification of the Virgin Mary	25	35	16 47	1 20	8
3	M	Blaes: Hilary Term 3 ret.	24	36	30	2 32	9
4	Tu		22	38	12	3 44	10
5	W	Agatba	20	40	15 54	4 53	11
6	Th		19	41	35	5 51	12
7	F		17	43	17	6 38	13
8	S		15	45	14 58	D rises	14
9	E	Septuagesima Sunday	13	47	39	4 a 21	F
10	M	Hilary Term 4th return	11	49	19	5 41	16
11	Tu		9	51	0	7 10	17
12	W	Hilary Term ends	8	52	13 40	8 33	18
13	Th	Old Candlemas day	6	54	20	9 57	19
14	F	Valentine	4	56	12 59	11 25	20
15	S		2	58	39	morn	21
16	E	Sexagesima Sunday	0 5	0	18	0 55	22
17	M		6 58	2 11	57	2 22	23
18	Tu		56	4	36	3 47	24
19	W		54	6	15	4 59	25
20	Th		52	8	10 53	5 49	26
21	F		51	9	31	6 27	27
22	S	Camb. T. divides morn.	49	11	10	6 53	28
23	E	Quinq. or Shrove Sunday	47	13	9 48	D sets	N
24	M	St. Matthias: Pr. Ad. Fr. b.	45	15	26	6 a 9	1
25	Tu	Shrove Tuesday	43	17	3	7 26	2
26	W	Ash Wednesday	41	19	8 41	8 40	3
27	Th		39	21	18	9 53	4
28	F		37	23	7 56	11 5	5

Days	L. of D.	Day Int.	D. breaks	Tw. ends	Sun East	Cl. bef. S.	7 Stars	S. Day
1	9	6	1 22	5 32	6 28	5 3	14' 2"	6 a 34
6	22		38	24	36	9	30	13
11	42		58	16	44	14	38	5 53
16	10	0	2 16	7	53	20	27	34 16
21	18		34	4 58	7 2	26	13 58	35 21
26	38	1	54	49	11	32	14	4 56

Nº 97.

March hath xxxi Days.

First Quarter, 3d, 46m. past 5 aftern.
 Full Moon, 11th, 49m. past 5 morn.
 Last Quarter, 17th, 7m. past 11 night.
 New Moon, 25th, 15m. past 8 morn.

Sun enters ♐
 zod. 8h. 3m.
 noon wmk.

D Age	S	David	6	33	5	27	7	8	33	morn	6
1	E	Quadra. or 1 Sun. in Lent	31	29			10	0	17		7
2	M	[Cbad]	29	31	6	47	1	31			8
3	Tu		27	33		24	2	40			9
4	W	Ember Week	25	35		1	3	43			10
5	Th		23	37	5	38	4	35			11
6	F	Perpetua	21	39		15	5	15			12
7	S		19	41	4	51	5	48			13
8	E	2 Sunday in Lent	17	43		28	6	7			14
9	M		15	45		4			D rises		15
10	F		13	47	3	41	6	2	14		F
11	Tu	Gregory	11	49		17	7	38			17
12	Th		9	51	2	54	9	10			18
13	F		7	53		30	10	41			19
14	S		5	55		6		morn			20
15	E	3 Sunday in Lent	3	57	1	43	0	13			21
16	M	St. Patrick	1	59		19	1	42			22
17	Tu	Edward King of W. Sax.	5	59	6	10	55	2	58		23
18	W		57	3		32	3	56			24
19	Th		55	5		8	4	37			25
20	F	Benedict	53	7	0	n 16	5	6			26
21	S		51	9		39	3	26			27
22	E	4th or Midlent Sunday	49	11	1	3	5	41			28
23	M		47	13		27	D fets				29
24	Tu	Anaunciati. or Lady Day	45	15		50	6	a 33			N
25	W		43	17	2	14	7	44			1
26	Th		41	19		37	8	56			2
27	F		39	21	3	1	10	8			3
28	S		37	23		24	11	22			4
29	E	5 Sunday in Lent	36	24		47		morn			5
30	M		34	26	4	11	0	36			6

S	Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun	East	Cl. bef. S.	7 Stars	So.
34	1	10	54	3	10	4	42	7	18	5
33	6	11	14		30	31		29		43
53	11	34	50		20		40		49	33
34	16	54	4	10	10		50		56	5
35	21	12	14		30	0	8	0	7	46
56	26	34	50	3	48		12		5	28

First Quarter, 2d, 43m. past noon.
 Full Moon, 9th, 16m. past 4 aftern.
 Last Quarter, 16th, 9m. past 7 morn.
 New Moon, 24th, 28m. bef. 1 morn.

Sun enters 8
 19d. 20h. 41m

1	Tu		5	32	6	28	4n34	1 m4
2	W			30	30	57	2	36
3	Th	Richard Bp. of Chichester	28	32	5	20	3	20
4	F	Ambrose: Cam. Ter. e.	26	34	43	3	52	
5	S	Orf. Term e.	24	30	6	6	4	18
6	E	6th, or Palm Sunday	22	38	28	4	36	
7	M	[Old Lady Day]	20	40	51	4	51	
8	Tu		18	42	7	13	D	rises
9	W		16	44	36	6 a	50	
10	Th	Munday Thursday	14	46	58	8	21	
11	F	Good Friday	12	48	20	9	55	
12	S		10	50	42	11	29	
13	E	Easter Day	8	52	9	4	morn	
14	M	Easter Monday	6	54	25	0	55	
15	Tu	Easter Tuesday	5	55	47	2	1	
16	W		3	57	10	8	2	49
17	Th		1	59	29	3	20	
18	F		4	59	1	50	3	43
19	S	Alphege		57	3	11	3	57
20	E	or S. af. East, or Low Sun.		55	5	32	4	10
21	M			53	7	52	4	20
22	Tu			51	9	12	4	31
23	W	St. George Or. & Ca. T.b.		50	10	33	D	sets
24	Th			48	12	53	8 a	0
25	F	St. Mark. Prs. Mary born		46	14	13	12	9 15
26	S			44	16	32	10	28
27	E	Sunday aft. Easter		42	18	51	11	37
28	M	Easter Term 1 ret.		40	20	14	10	morn
29	Tu			39	21	29	0	37
30	W	Easter Term begins		37	23	47	1	24

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun East	Cl. bef. S.	7 Stars S.
1	12	56	5 12	3 31	8 31	6 10	3' 59"
6	13	16	32	19	43	22	2 29
11		36	52	4	58	28	1 3
16		54	6 10	2 52	9 31	34	0 a 15
21	14	14	30	38	25	39	1 23
26	32	48	23	40	45	2 20	3 5

First Quarter, 2d, 6m. past 4 morn.
 Full Moon, 9th, 11m. bef. 1 morn.
 Last Quarter, 15th, 32m. past 4 aftern.
 New Moon, 23d, 43m. past 4 aftern.
 First Quarter, 31st, 45m. past 3 aftern.

Sun enters **II**
 zod. 21h. 19m.

1	Th	St. Philip and St. James	4	35	7	25	15 ⁿ	5	2 m	0	7	
2	F			34		26		23	2	25	8	
3	S	<i>Invention of the Cross</i>		32		28		41	2	46	9	
4	E	<i>3 Sunday after Easter</i>		30		30		59	3	2	10	
5	M	Easter Term 2 return		28		32	16	16	3	16	11	
6	Tu	<i>John Ev. ante Pari. Lat.</i>		27		33		33	3	28	12	
7	W			25		35		50	3	41	13	
8	Th			23		37	17	6	D	rises	14	
9	F			22		38		22	8 a	57	15	
10	S			20		40		38	10	32	F	
11	E	<i>4 Sunday after Easter</i>		19		41		54	11	52	17	
12	M	East. Term 3 re.		17		43	18	9	morn		18	
13	Tu	<i>Old Mayday</i>		16		44		24	0	48	19	
14	W			14		46		38	1	25	20	
15	Th			13		47		53	1	50	21	
16	F			11		49	19	7	2	8	22	
17	S	Prs. of Wales born 1768		10		50		20	2	22	23	
18	E	<i>5th or Rogation Sunday</i>		8		52		34	2	33	24	
19	M	Queen Charlotte b. ^o 1744		7		53		47	2	43	25	
20	Tu	[Dunst. Ea.T.4 re.		6		54	20	0	2	52	26	
21	W			4		56		12	3	4	27	
22	Th	Ascension: Prs. Elisab. b.		3		57		24	3	17	28	
23	F	Easter Term 5 return		2		58		36	D	sets	N	
24	S			0	8	0		47	9 a	27	1	
25	E	<i>Sunday after Ascension</i>		3	59	1		58	10	30	2	
26	M	East. Term e. <i>Augustin</i>		58		2	21	8	11	22	3	
27	Tu	<i>Venerable Bede</i>		57		3		19	morn		4	
28	W			56		4		29	0	1	5	
29	T	King Charles II. restored		55		5		38	0	29	6	
30	F	[Orf. T.e. C.T.d.n.		54		6		47	0	51	7	
31	S			53		7		56	1	7	8	

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun	East	Cl. aft. S.	7 Stars	So.
1	14	50	7	6	2	5	9	59	6
6	15	6	22	1	51	10	13	56	3
11		22	38		29		35	7	37
16		38	54		6		50		18
21		52	8	8	0	20	11	36	55
26	16	4	20		No real Night		9		59
							48		11 m 58
							9		39
							48		12
							23		50

Full Moon, 7th, 2m. past 8 morn. 1000M. 11h.
 Last Quarter, 14th, 2m. past 4 morn. 1100M. 12h.
 New Moon, 22d, 53m. past 7 morn. 121d. 5h. 47m.
 First Quarter, 29th, 17m. past 12 night. 1200M. 13h.

1	E	Whit-Sunday	Nicomede	3	52	8	8122n	4	1	m20	9
2	M	Whit-Monday		51		9	12	1	32	10	2
3	Tu	Whit-Tuesday		50		10	20	1	45	11	3
4	W	King Geo. II. b: Emb. W.		49		11	27	1	59	12	4
5	Th	Duke of Cumberland born		49		11	34	2	15	13	5
6	F	[Boniface]		48		12	40	D	rises	14	6
7	S			47		13	46	9	22	F	7
8	E	Trinity Sunday		47		13	52	10	31	16	8
9	M	Trin. Term 1 return		46		14	57	11	18	17	9
10	Tu			46		14	23	2	11	48	18
11	W	St. Barnabas	Ort. Ter. b.	45		15	6		morn	19	11
12	Th	Corpus Christi		45		15	10	0	9	20	12
13	F	Trinity Term begins		44		16	14	0	25	21	13
14	S			44		16	17	0	36	22	14
15	E	1 Sunday after Trinity		44		16	20	0	47	23	15
16	M	Trin. Ter. 2 re.		43		17	22	0	58	24	16
17	Tu	Alban		43		17	24	1	8	25	17
18	W						26	1	21	26	18
19	Th						27	1	37	27	19
20	F	Trans. Ed. K. W. S.					28	1	58	28	20
21	S	Longest Day					28	D	sets	29	21
22	E	2 Sunday after Trinity					28	9	214	N	22
23	M	Trin. Te. 3 ret.					27	9	57	1	23
24	Tu	Nativity of St. John Baptist					26	10	27	2	24
25	W	[Mid. Day]		43		17	25	10	50	3	25
26	Th			43		16	23	11	8	4	26
27	F			44		16	21	11	22	5	27
28	S			44		16	19	11	34	6	28
29	E	3 Sun. a. Trin. St. Peter		44		15	16	11	46	7	29
30	M	Tr. Term 4 return		45		15	12	11	59	8	30

Longest Day at Lond.
is 16h. 34m. 4sec.
allowing 9m. 16sec.
for refraction.

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun. East	Cl. aft. S.	7 Stars So.
1	16	16	8	32		2' 37"	10m54
6	24	40	No real night, but		18	1 49	34
11	30	46	constant day		19	0 53	14
16	34	50	or twilight.		20	be. 30	9 55
21	34	50			21	1 15	32
26	32	o dec. 2			20	2 19	12

Full Moon,	6th,	52m. past	2 aftern.	1000M 1100M
Last Quarter,	13th,	17m. past	6 aftern.	Sun enters ♀
New Moon,	21st,	40m. past	9 aftern.	22d. 16h. 35m.
First Quarter,	29th,	39m. past	6 morn.	1000M 1100M
1 Tu	Camb. Commencement	3 46 8	14 23 n 8	morn 9
2 W	Visitation V.M. Trin. T.e.	46	14	0 13 10
3 Th	Dog Days begin	47	13	0 0 31 11
4 F	Translation of St. Martin	48	12 22	55 0 58 12
5 S	Cam. T. e. [OldMids.	48	12	49 D rises 13
6 E	5 Sunday after Trinity	49	11	43 9 a 2 F
7 M	Thomas a Becket	50	10	37 9 41 15
8 Tu		50	10	31 10 6 16
9 W		51	9	24 10 24 17
10 Th		52	8	16 10 38 18
11 F		53	7	8 10 50 19
12 S		54	6	0 11 0 20
13 E	5 Sunday after Trinity	55	5 21	52 11 11 21
14 M	Orford Act	56	4	43 11 22 22
15 Tu	Switbin	57	3	34 11 37 23
16 W		58	2	24 11 56 24
17 Th		4	0 0	14 morn 25
18 F		1 7	59	4 0 21 26
19 S	Orf. Term ends	2	58 20	53 0 57 27
20 E	6 Sunday after Trinity	3	57	42 1 46 28
21 M	[Margare]	5	55	31 D sets N
N 22 Tu	Mary Magdalene	6	54	19 8 a 51 1
1 23 W		7	53	7 9 9 2
2 24 Th		9	51 19	54 9 26 3
3 25 F	St. James	10	50	41 9 39 4
4 26 S	Anne	11	49	28 9 50 5
5 27 E	7 Sunday after Trinity	13	47	15 10 3 6
6 28 M		14	46	1 10 16 7
7 29 T		16	41 18	47 10 33 8
8 30 W		17	41	33 10 55 9
31 Th		18	41	18 11 28 10

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun East	Cl. bef. S.	Stars So.
1	16	28	0 6		7 19	3 20	8 m 51
6	22	12			17	4 14	31
11	14	20		No real Night	15	5 0	10
16	4	30			12	35	7 50
21	15	50	44		9	57	30
26	38	56	0 46	11 11	5	6 6	10

Full Moon, 4th, 39m. past 10 night.

Last Quarter, 12th, 43m. past 10 morn.

New Moon, 20th, 17m. past 10 morn.

First Quarter, 27th, 2m. past noon.

Sun enters $\text{\textit{m}}$
22d. 22h, 59m

1	F	Lammas Day	4	20	7	40	18	n	morn	11
2	S		22		38	17	48	o	18	12
3	E	Sunday after Trinity	24		36		32	D	rises	13
4	M		25		35		17	8	a	14
5	Tu		27		33		o	8	26	15
6	W	Transfiguration [N. of Jesu.]	28		32	16	44	8	41	16
7	Th	Prs. Amelia born 1783	30		30		27	8	54	17
8	F		32		28		11	9	6	18
9	S	[Laurence]	34		26	15	53	9	17	19
10	E	o Sunday after Trinity	35		25		36	9	27	20
11	M	Duc. Bruns. b. Dog Da.e.	37		23		18	9	42	21
12	Tu	Prince of Wales born 1762	39		21		o	10	c	22
13	W	Old Lammas Day	41		19	14	42	10	22	23
14	Th		42		18		24	10	53	24
15	F	Assumption of V. M.	44		16		5	11	39	25
16	S	Duke of York born 1763	46		14	13	46	morn	26	26
17	E	o Sunday after Trinity	48		12		27	o	36	27
18	M		50		10		8	1	46	28
19	Tu		51		9	12	48	D	sets	29
20	W		53		7		29	7	a	36
21	Th	Duke of Clarence b. 1765	55		5		9	7	49	1
22	F		57		3	11	49	8	2	2
23	S		59		1		28	8	14	3
24	E	S. af. Tr. St. Bartholom.	6	1	59		8	8	27	4
25	M		2		58	10	47	8	42	5
26	Tu		4		56		26	9	3	6
27	W		6		54		5	9	32	7
28	Th	Augustine of H.	8		52	9	44	10	15	8
29	F	S. J. Baptist beheaded	10		50		23	11	15	9
30	S		12		48		1	morn	10	10
31	E	2 Sunday after Trinity	14		46	8	40	o	34	11

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun	East	Cl. bef. S.	7	Stars	Sp
1	15	20	1	14	1	24	10	33	6	59
6		4		30		44		13	54	57
11	14	46		48	2	2	9	56	46	32
16		28	2	6		20		38	44	4
21		10		24		35	23		38	3
26	13	52		42		50	0		33	2

Full Moon, 3d, 40m. past 8 morn.
 Last Quarter, 11th, 7m. past 5 morn.
 New Moon, 18th, 3m. past 10 night.
 First Quarter, 25th, 38m. past 5 aftern.

Sun enters Δ
 22d. 19h. 31m.

1	M	Giles	5	16	6	44	8n 18	2 m z	12
2	Tu	London burnt 1666		18	42	7 56	D rises	13	
3	W			20	40	34	7 a 6	F	
4	Th			22	38	12	7 19	15	
5	F			23	37	6 50	7 30	16	
6	S			25	35	28	7 42	17	
7	E	3 Sunday after Trinity		27	33	5	7 55	18	
8	M	Nativity V.M. [Enuribus		29	31	5 43	8 13	19	
9	Tu			31	29	20	8 32	20	
10	W			33	27	4 57	8 59	21	
11	Th			35	25	34	9 38	22	
12	F			37	23	11 10	29	23	
13	S			39	21	3 48	11 33	24	
14	E	4 Sunday after Trinity		41	19	25	morn	25	
15	M	[Holy-Cross]		43	17	2	0 47	26	
16	Tu			45	15	2 39	2 7	27	
17	W	Ember Week Lamber		47	13	16	3 29	28	
18	Th			49	11	1 53	D sets	N	
19	F			51	9	29	6 a 29	1	
20	S			53	7	6	6 42	2	
21	E	5 S. af. Tri. St. Matthew		55	5	0 42	6 57	3	
22	M	King Geo. III. crowned		57	3	19	7 17	4	
23	Tu			59	1	0 5 4	7 44	5	
24	W		6	1 5	59	28	8 20	6	
25	Th	Cyprian: Old Holy Rood		3	57	5 9	16	7	
26	F			4	56	1 15	10 29	8	
27	S			6	54	38	11 51	9	
28	E	6 Sunday after Trinity		8	52	2	morn	10	
29	M	St. Michael. Dus. Wirt. b.		10	50	25	1 19	11	
30	Tu	Jerome		12	48	48	2 44	12	

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun East	Cl. aft. S.	7 Stars So.
1	13	28	3 6	3 7	8 53	6 26	0' 11° 4 m 50
2	6	10	24	21	39	20	1 48 32
3	11	12	50	44	34	14	3 30 14
4	16	30	4 4	45	15	7	5 14 3
5	21	10	24	56	4	1	6 58 56
6	26	11	41	4 7	7 53	5 55	8 41 30

Full Moon, 2d, 46m. past 9 night.

Last Quarter, 10th, 11m. past 12 night.

New Moon, 18th, 12m. past 9 morn.

First Quarter, 25th, 11m. bef. 1 morn.

Sun enters m
23d. 3h. 34m.

1	W	Remigius	16	14	5	46	3	12	D	rites	13
2	Th		16		44		35		5	a	46
3	F		18		42		58		5	58	15
4	S		20		40		4	21	6	8	16
5	E	17 Sunday after Trinity	22		38		45		6	24	17
6	M	Faith	24		36		5	8	6	43	18
7	Tu		26		34		31		7	8	19
8	W		28		32		54		7	41	20
9	Th	Denys	30		30		6	17	8	27	21
10	F	Ort. and C. Term b.	32		28		40		9	25	22
11	S	Old Michaelmas	34		26		7	2	10	33	23
12	E	18 Sunday after Trinity	36		24		25		11	52	24
13	M	Trans. K. Edw. Con.	38		22		47		morn		25
14	Tu		40		20		8	10	1	11	26
15	W		42		18		32		2	31	27
16	Th		44		16		54		3	54	28
17	F	Eteldred	45		15		9	17		D	sets
18	S	St. Luke	47		13		38		5	a	9
19	E	19 Sunday after Trinity	49		11		10	0	5	27	1
20	M		51		9		22		5	50	2
21	Tu		53		7		43		6	24	3
22	W		55		5		11		7	15	4
23	Th		57		3		26		8	24	5
24	F	[Crispin]	59		1		47		9	46	6
25	S	King George III. accession	7	1	4	59	12	8	11	12	7
26	E	20 S. af. Tri: K. Geo. 3 pro.	3		57		28		morn		8
27	M		4		56		49		0	39	9
28	Tu	St. Simon and Jude	6		54		13	9	1	59	10
29	W		8		52		29		3	16	11
30	Th		10		50		49		4	32	12
31	F		12		48		14	9	5	47	13

Days	hr. of	D.	Day dec.	D. breaks	1 w. ends	Sun	East	Cl.	aft.	S.	7 Stars	So.
1	11	32	5	2	4	19	7	41	5	49	10'	20'
6	12	22			30		30		43		11	51
11	10	52	42	40		20		36		13	12	26
16	11	32	6	2	50		10		30		14	21
21	14	20			59		1		24		15	15
26	9	24	40	5	8	6	52		18		53	28

Full Moon, 31st, 59m. past 1 aften.

Last Quarter, 9th, 38m. past 6 aften.

Sun enters ♈

New Moon, 16th, 50m. past 7 aften.

21d. 23h. 51m.

First Quarter, 23d, 45m. past 10 morn.

	S	All Saints	All Souls	7	14	4	46	14	28	D	rises	F
1	E	21 S. a. Tri. D. of Kent b.		15	45		47	4	2	51		15
2	M	Prs. Sophia b. Mic. T. 1 re.		17	43	15	6	5	12			16
3	Tu	King William landed		19	41		25	5	42			17
4	W	Powder Plot 1605		21	39		43	6	24			18
5	Th	Leonard. Mich. Term b.		22	38	16	1	7	18			19
6	F			24	36		19	8	25			20
7	S	Prs. Aug. Sophia b. 1768		26	34		37	9	34			21
8	E	22 Sunday after Trinity		27	33		54	10	51			22
9	M	[Lord Mayor's day		29	31	17	11	morn				23
10	Tu	Martin		31	29		28	0	9			24
11	W	Mic. T. 2 r. Cam. T. di. m.		32	28		44	1	26			25
12	Th	Britius		34	26	18	0	2	48			26
13	F			36	24		16	4	12			27
14	S	Macbutus		37	23		32	5	40			28
15	E	23 Sunday after Trinity		39	21		47	D	sets			N
16	M	Hugh Bp. of Lincoln		40	20	19	2	4	2	17		1
17	Tu	Mich. Term 3 return		42	18		16	5	1			2
18	W			43	17		30	6	5			3
19	Th	Edmund K. and mart.		44	16		44	7	25			4
20	F			46	14		57	8	55			5
21	S	Cæcilia.		47	13	20	10	10	22			6
22	E	24 Sunday after Trinity		48	12		23	11	45			7
23	M	[Old Mart. day: Clement]		50	10		36	morn				8
24	Tu	Duke of Gloucester born		51	9		47	1	3			9
25	W	[Caribe. Mic. T. 4 re.		52	8		59	2	18			10
26	Th			53	7	21	10	3	31			11
27	F	Mich. Term ends		54	6		21	4	46			12
28	S			56	4		31	5	59			13
29	E	Advent Sun. St. Andrew		57	3		41	7	13			14

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun	East	Cl.	aft. S.	7	Stars	So.	
1	9	32	7	2	5	17	6	43	5	32	16° 15"	1 32 7
6		16		18		24		36		6	11	0 47
11	8	58		36		30		30		7	15 46	27
16		42		52		36		24		56	14 59	6
21		28	8	6		43		17		52	13 52	11 2 48
26		16		18		49		11		48	12 25	20

Full Moon,	1st, 24m. past	8 morn.
Last Quarter,	9th, 14m. past	11 morn.
New Moon,	16th, 5m. past	6 morn.
First Quarter,	22d, 17m. past	12 night.
Full Moon,	31st, 37m. past	3 morn.

Sun enters \textcircled{W}
21^{d.} 12^{h.} 15^{m.}

1	M	7	58	4	2	21851	D	rises	F
2	Tu		59		1	22	0	4 a 16	16
3	W	8	0	0	0	8	5	5	17
4	Th		0	0	17	6	5	18	
5	F	1	3	59	24	7	13	19	
6	S	Nicholas	2	58	32	8	29	20	
7	E	z Sunday in Advent	3	57	39	9	44	21	
8	M	Conception of V. Mary	4	56	48	11	0	22	
9	Tu		4	56	51	morn		23	
10	W		5	55	57	0	16	24	
11	Th		5	55	23	1	35	25	
12	F		6	54	7	2	57	26	
13	S	Lucy	6	54	11	4	25	27	
14	E	3 Sunday in Advent	7	53	15	5	59	28	
15	M		7	53	18	D sets		29	
16	Tu	O. Sapienti. Cam. Ter. e.	7	53	21	3 a 31		N	
17	W	Ember Week O pf. T. e.	7	53	23	4	45	1	
18	Th		8	52	25	6	14	2	
19	F				27	7	45	3	
20	S				27	9	14	4	
21	E	4 Su. in Adv. St. Thomas			28	10	37	5	
22	M	[Shortest Day			28	11	56	6	
23	Tu				27	morn		7	
24	W				27	1	9	8	
25	Th	Christmas Day	7	53	25	2	22	9	
26	F	St. Stephen	7	53	23	3	37	10	
27	S	St. John Ev.	6	54	21	4	50	11	
28	E	1 Sun. af. Chri: Innocents	6	54	18	6	3	12	
29	M		6	54	15	7	10	13	
30	Tu		5	55	11	D	rises	14	
31	W	Silvester	5	55	7	3 a 46		F	

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun	East	Cl. aft. S.	Stars So
I	8 4	8 30	5 55	6 5	4 45	10° 40''	10 2	59
6	7 56	38	- 58	2	43	8 39		37
II	50	44	59	1	41	6 25		15
16	46	48	6 0	0	40	4 0	9	53
21	44	50	1	5 59	39	1 31		31
26	46	oinc. 2	0	6 0	40	ob. 59		9

CHRONOLOGICAL NOTES, &c. in 1800.

Dominical Letter	E	Roman Indiction	3	Easter Day	April 13
Golden Number	15	Septuage. Sun. Feb. 9		Ascension Day	May 22
Epact	4	Shrove Sunday Feb. 23		Whit-Sunday	June 1
Cycle of the Sun	17	Lent begins Feb. 26		Advent-Sun.	Nov. 30

ECLIPSES, &c.

THREE will be four eclipses this year, two of the Sun, and two of the Moon; but one only, of the latter, will be visible in these parts.

I. APRIL 9, the Moon is eclipsed, but invisible here, begins 3h. 6m afternoon; middle 4h 23m; ends 5h 40; digits eclipsed 6° 50'.

II. APRIL 23, the Sun is eclipsed, invisible, at 32m past 12 at night.

III. OCT. 2, the Moon is eclipsed, visible: begins 9h 1m; middle 9h 56m; ends 10h 51m, at night. Digits eclipsed 2° 43' north limb.

IV. OCT. 18, the Sun is eclipsed, invisible, at 9h 12m morning.

VENUS is a morning star till Aug. 5; then an evening star to the end.

JUPITER is an evening star till Aug. 6; then a morning star to the end.

ANSWERS to the ENIGMAS.

Innocence	6 Enigma	Suppl. Enigmas.	5 Egg
Blush	7 Time	1 Fancy	6 Aurora Borealis
Diphthong	8 E	2 Darkness	
Hope	9 Bone	3 Map	7 or Pr. Bed
Lock	10 or Pr. Fancy	4 Apoth. Shop,	

Answers to the Prize Enigma.

1. By Mr. John Ashcroft, Barlaston.

To gain the prize, what numbers
strive,
Tho' Fortune many does deprive;
On some she lovely smiles doth cast,
But others' efforts still doth blast.

No harm, I Fancy, 'mong the rest,
To send my tribute, to be blest;
Or else thrown back by angry fate;
Deny'd admittance in her gate.

2. By Mr. John Fildes, Liverpool.

In Smart's sweet lines how Fancy
shines;
Each verse with judgment made is;

He shews much skill, and wit at will,
In writing for the ladies.

3. By Mr. Wm. Francis, Jun.

Tho' Pope in harmony excell,
And Shenstone wrote with ease;

Sure, Smart's *Imagination well*
Diarians all must please.

4. By Mr. Jos. Hatfield, Mansfield.

Ye bards, my little harp I string,
And Smart instructs me, while I sing,
Of Fancy's everpleasing name:
O join in plaudits to her fame.
Fancy, possess'd of every charm,
In every state the heart can warm;

To friendship pure and love gives
birth,
And stamps on hope a double worth;
Bears us o'er pain's o'erwhelming
flood,
And lets us taste of future good;

She equals Fortune's partial lot,
And strews with flow'rs the peasant's
cot.

Does bus'ness call our steps from home,
Or does ambition tempt to roam?
The longest space she can remove,
That parts from home, and all we
love,

Affords the absent lover bliss,
And gives and takes the luscious kiss,
To science ev'ry charm imparts,
This perfect handmaid to the arts;
To eloquence her powers belong,
They wake to life the poet's song;
Fancy can rend enigma's veil.—
I've strut my hour—excuse my tale,

5. *By Mr. Jas. Heulcroft, Stand. &c.*

Ye bards of Di. what sweetnes flows
In your annual sheets of fame;

In you how vivid *Fancy* glows,
To gain you an immortal name.

6. *By Miss A. W. Maken.*

With pleasure I the task renew,
And fain would solve the prize;
But *Fancy* says, 'tis not for you
To strip the dark disguise:

On Furness, Fildes, or Smart alone,
Such favours are bestow'd.
And well bestow'd, said I, I own:
And with submission bow'd.

7. *By Miss Caroline Mortimer.*

Propitious hear my prayer, ye powers
divine!

If ever I am doom'd to be a wife!

Oh make the gentle, gen'rous Damon
mine,

Or make me *Fancy* still a single life.

8. *By Mr. John Rimmer, of Liverpool.*

While *Fancy* holds her wonted seat,
In Dia's cause I'll string my lyre;

With transport still, and love, repeat
Whate'er the Nine shall deign t'inspire.

9. *By Mr. Robert Sanderson.*

The prize I conn'd till I scarcely cou'd see,
When fairy *Fancy* whisper'd, 'Bob, 'tis me.'

10. *Miss A. T. to Mr. Jos. Gilbert.*

Indeed too high my humble lines you
raise; [kind praise.
Accept my grateful thanks for such
By far too much exalted, let me
say, [poor lay.
Th' encomium's sure too great for my
Your *Fancy*, Mr. Gilbert, soars too
high;

Your veries excellent, mine far out-
vie. [contrast made,
'How vast the diff'rence, were the
Mine flaunt in rags, your's flutter in
brocade.' [sphere,
I ne'er expect to rise from humble
So count my writings skilless as they
are.

11. *Mr. Wm. Watkins's Advice to his Son.*

Beware, my boy, when at the school,
You square your time by reason's rule,
And read immortal Newton:

Let wisdom, learning, science bright,
Charin your *Fancy* with delight,
And emulate a Hutton.

Other separate and ingenious answers to the Prize Enigma, beside those inserted in the Supplement, were given by the following ladies and gentlemen & *viz.* Wm. Anderson, J. Bayley, George Boulby, Robt. Bradley, John Brooksbank, J. Brown, Tho. Bullock, John Cavins, B. Cleypole, Tho. Coulterd, Tho. Crefsy, T. Davis, Ja. Dick, R. Dutton, T. S. Evans, Rev. J. Erobank, Mrs. Furness, Sam. Harvey, B. H-n, Jane Hales, John Hawkes, Jos. Hindson, Rd. Humber, GHI, JLJ, Jacobus, Da. Lewis, H. W. Maprè, Wm. Myriorit, Narcissa, John Needham, Tho. Nield, Joan Parker, Tho. Partridge, Cba. Pritty, Tho. Rimmer, J. P. Roberts, Alex. Rowe, G. S., John Scholfield, Rev. Ed. Shppard, Wm. Stainby, Tho. Thorpe, Jun. James Thoubren, Tho. Trustwell, Miss Wall, W. Ward, T. Weedon, John Williamson, Ja. Wilson, Gilbert Young, &c.

GENERAL ANSWERS to the ENIGMAS.

1. *Address to Innocence; by Mr. Jos. Hatfield, of Mansfield.*

weet Innocence, with *bidden face,
In nature's purest *Blushes* drest,
nd every gentle maiden grāce,
Tacheish *Hope* within your *breast*.

* 6, *Enig.*

May falsehood never tempt thy love
With *Fancy*'d joys, I must not name,
But *Time* bellow a mate to prove
The joys of wed*Lock*'s purer flame.

† 9, *Bone.*

2. *Mr. Tho. Hindmarsh's Address to his Wooden Leg.*

Twice seven years my friendly prop,
ast thou vouchsaf'd to bear me up,
When heedlessly I stray'd;
ut now arriv'd at age mature, [sure,
ence let me share with steps more
Thy substituted aid.
former days, I must confess
Blush to tell, I lov'd thee less,
Thou so restrain'd my will :
Now puerile passions are subdu'd,
Which did so vig'rously intrude,
Oft times my breast to fill :

Thy kind reproofs my mind inspir'd,
To live a rural life retir'd;
Its joys who can express !
Here undisturb'd I sit sedate,
I muse on *Innocence*, or *Fate*,
In *Enigmatic* dress.
When *Time* convertis to powder small,
My *Bones* and thee, at trumpet's call,
Complete I *Hope* to rise ;
My scatter'd atoms will unite,
To meet the lord of life and light,
Enthron'd in yonder skies.

3. *The Same, by Jacobus, of Norwich.*

te *Innocent* fair, once more I see
the crimson *Blush* of modesty
Adorn fair-Dia's page : [wife,
here *Diptong*, join'd like man and
Who *Hope* their love will last for life;
Your prying thoughts engage.

With ease ye can unlock the cell
Where dark *Enigmas* frequent dwell,
By you oft times reveal'd :
Tho' I may con them o'er in vain,
(Hard *Bones* for *Fancy*'s whimsy
So close they lie conceal'd, [brain,)

4. *The Same: by Mr. Wm. Middleton, of Holland.*

What rose can with the *Blush* compare,
What lovely *Innocence* doth wear ?
Can *Riddles* her soft features trace ?
Can *Fancy*'d *Locks* her beauty grace ?
Till *Time* (sure fate !) in dust hath
laid

Our *Bones*. May innocence, sweet
maid !
Our steps attend, what's ill decry ;
Teach us both how to live and die :
Here to enjoy blest *Hope* and peace ;
Hereafter, joys that ne'er shall cease

5. *The Old Bachelor's Dream: by Mr. Tho. Rimmer, Standish.*

One night I dream'd I'd got a wife,
The joy and solace of my life :
An *Innocent*, so fair; in fine,
tho't her more than half divine.
Her angel form, her *Blushing* cheek,
Angelic did her mind bespeak :
Fancy seem'd with her to dwell.
But, O, the husly ! must I tell ?

Ere a month's *Time* had passed quite,
Metho't she prov'd a very sprite.
Ah ! tho't I, where am I ? where—
'Tis 'nough to make a parson swear ;
O this wedlock ! O, this wife !
Death come eale me—take my life.
With rage I started up, and said
'O that I had ne'er been wed.'

Indignant Susan heard my moan :
 Thou fiend, says she, from me Begone :
 I'll wear the breeches, senseless Elf—
 I care for no one but myself—
 A something in her hand, metho't,
 She'd got to lay me all afloat,—

For fear, I stumbled, broke my leg;
 ' I Hope for mercy—nay, I beg
 ' You'll calmer be, for I am lame,
 ' (Enigma's life)—I from my dream
 Awoke.—The shock still frightened
 Ye Gods! may I ne'er marry'd be! (me)

6. *The Same : by Miss J. P. Roberts, of Deck.*

Ladies, permit an infant muse,
 Not yet sixteen, to beg excuse,
 Your Riddles to explain :
 If you'll indulge this early toil,
 Lock'd in my heart your gracious smile
 Shall evermore remain.

Tho' little us'd such themes to pore,
 Unskill'd in enigmatic lore,
 The path I wish to tread ;

In anxious Hope that Time will bring
 The willing lyre, essay'd to sing,
 Of an advent'rous maid.
 Vowels and Diptongs, tho' obscure,
 Shall edge my taste for learning's lug
 Since Fancy is the prize ;

In barmless study I'll delight,
 Nor Blush e'en of a Bone to write,
 In your esteem to rise.

7. *William and Mary ; a Pastoral Ballad : by Mr. Tho. R. Smart.*

Within a sweet sequest'red vale,
 O'ershadow'd by a wood,
 Safe from the tempest's ruffing gale,
 Sweet Mary's cottage stood.

The mantling ivy flourish'd fair,
 Delightful to the view ; [there,
 The woodbine spread its branches
 And there the jasmine grew.

A pebbly rill ran murmur'ring by,
 The flow'ry brink to lave,
 Where sportive play'd the little fry,
 Mid the translucent wave.

Fair as the lily was the maid,
 That spot nor fully knows,
 In native Innocence array'd,
 And sweeter than the rose.

Her auburn Locks by nature wove,
 Upon her shoulders hung ;
 Her voice like music in the grove,
 Gay as the lark she sung.

And many a youth the maid pursued,
 To gain her favor strove ;
 Beyond the rest young William woo'd,
 And faithful was his love.

Now William was a gentle swain,
 Devoid of *guileful art ;
 And all the lasses of the plain,
 Long wish'd to gain his heart.

No store of wealth was William's lot
 No hoards of useless gold ;
 His wealth compriz'd his humble cot
 His dairy and his fold.

Oftimes for Mary would he sigh,
 When Hope forsook his breast,
 The tear stood trembling in his Eye,
 And robb'd his soul of rest.

The virgin saw the drooping youth,
 And tender pity mov'd,
 Won by his modesty and truth,
 She Blushing, told she lov'd.

Enraptur'd with the preſence paid
 The joyful shepherd hy'd
 To Hymen's altar with the maid,
 And clasp'd his blooming bride.

Days, months, and years glide swi
 In bliss without alloy ; [aw
 While Fancy gilds the future day
 With scenes of op'ning joy.

* Alluding to *Enigma*, the 6th.

8. *The Same answered, by Miss Eliza Still.*

utilia, once a charming lass,
And like the lilly fair ;
Fancy few could her surpass,
And graceful was her air.
The Blushes on her lovely cheek
Did heighten beauty's charm ;
Her auburn Locks wav'd on her neck,
Her heart for friendship's warm.
Content sat smiling on her brow,
Till E and U appear'd ;
How dreadful was her woe,
When she the tidings heard,

That they for her a duel fought,
And each had slain the other ;
For one she lov'd ; O dreadful tho't ;
Her grief she could not smother.
For she, sad maid, had Hop'd in Time,
To be her Edward's wife ;
But now, alas ! just in her prime,
She soon will quit this life.
Her figure, once so finely form'd,
Is wearing to a Bone ;
The contrast, what she is, and was,
Wou'd melt a heart of stone.

9. *Rural Felicity : by Mr. Rob. Walker, of Bywell.*

Happy's the man who, free from care,
Contented breathes his native air,
In some sequester'd vale ;
Where Innocence and joy preside,
Nor vice, to luxury e'er ally'd,
Invades his humble cell.
For the terrific din of arms
Inspires his soul with dire alarms,
Or martial airs infest ;
For the tempestuous winds that sweep
The billowy main, the foaming deep,
His slumbers sweet molest.
With sober Fancy for his guide,
He scorns not the ills that life betide,
But scorns its fleeting toys ;
Renov'd from scenes where baneful
Strife,
His Eye contracts the span of human life,
Imbitters all its joys ;
And when each gay returning morn,
With Blushing hue the hills adorn,
And sheds resplendent rays ;
When the sweet warblers of the grove,
Plead new their artless songs of love,
And chant their wonted lays ;

He jocund drives his team along,
Whilst, frau't with many a grateful
Kind zephyrs greet his ear ; [song,
Supported still, by cheering Hopes,
That genial rains, and plenteous crops,
Will crown the rolling year.

At Eve, when ev'ry labour's sped,
Joyous he seeks his humble shed,
Where dwells a loving wife ;
Who strives by each alluring art,
To win th' affections of the heart,
And soothe the cares of life.

When Time, that flies 'on eagle's
wing,'
From brawny toil a respite brings,
And puts dull care to flight ;
With * gun the rural sport pursues,
Or deigns to court the bashful muse,
Or some Enigma write.

A life like this, and this alone,
Beyond the splendors of a throne,
I ever shall esteem ;
What are the pride and pomp of kings,
But vain and unsubstantial things,
That vanish like a dream !

* 5th, or Lock.

10. *To Spring : by Mr. Joseph Wilson, Black Callerton.*

In I tune the warbling lyre,
And strike with joy the trembling wire,
In chorus with the dove ;
With Philomel upon the spray,
Sing the beauties of the May,
The queen of rapt'rous love.

Hope, sweetest child of distant joys,
Clears my brain of heedless toys,
And striding bends my quill ;
While Time on plumpy wings does bring
About the captivating spring,
And charming scenes distill.

The laughing grove in fresh array,
Each *Riddling* muse with melting lay,
Is urged to admire ; [hole,
While Hibiean bees pop from their
And buzzing, fly from pole to pole,
And every breast inspire.
Contented then beneath the shade,
Upon the grafts my *Bones* are laid,
The *Blushing* day to view ;

While birds harmonious in the vale,
Swell with mirth the flow'ry dale,
And pleasures fresh renew.
What *Fancy* then can there compare,
To nature's charms serene and fair,
Unsullied to the *Eye* ;
The earth prolific meet the blaze
Of distant sol's inspiring rays,
Shot from the azure sky.

11. *The Same* : by Mr. Wm. Gradidge, formerly of Canterbury.

Once more dear Di, I seek the laurelled plume,
Among your warmest friends again presume,
The lists to enter, emulous of fame,
And at your hallowed shrine record my name.
My *Hopes* I pledge, your *Fancies* to unlock,
Tho' dark *disguise* appears the way to block ;
Yes, be assur'd, I'll bring the whole to light,
Altho' you think them hid from mortal sight.
Methinks, you *Blush* to hear them told aloud,
Your *Innocence* exposed to all the crowd,
Perhaps, next year, my rudeness to atone,
You'll give me then to pick—a harder *Bone*.

12. *The Same* : by Mr. Peter Steel Dale, Liverpool.

Dear ladies, pray permit your humble friend,
His answer to this year's enigs to send.
Where *Innocence* her name still deigns to place,
And Dia's page with her bright form to grace.
The *Blush* comes next, in Bayley's polish'd lays,
Digitting and *Hope*'s sweet lines each bard must praise,
While Field's *Lock* does admiration raise.
The *Engra* next is set before our eyes,
Then *Time*, which still all worldly things destroy.
The *E*, and likewise *Bone*, display much art ;
And *Fancy*'s finely drawn by Mr. Smart.

13. *Elegy* : by Lavinius, of Lancaster.

Infatiate archer! could not once suffice ?
Thy shaft flew twice, and twice my peace was slain,
And twice, ere twice yon moon had fill'd her horn.

At length, escap'd from every human eye ;—
Thus mourn'd the poet o'er his Lucy's bier :
Let this poor, least return him sigh for sigh,
And these twain Eyes supply him tear for tear.

YOUNG.

For I, like him, another Lucy mourn,
Lock'd in the arms of death her ashes sleep ;
And a lov'd son, from his fond father torn,
Finds an untimely cradle in the deep.

5, 9

Her Blushing cheek excell'd the roses bloom,
And Innocence adorn'd her gentle breast ;—
Ah ! Hopeless, where, but in the silent tomb,
Shall a poor widow'd mourner look for rest ?

7

2

1

4

Sigh then, my heart, and tears for ever flow !
Chill'd be my mule ! Cold as eternal frost !
For puzzling Fancy pain's afresh my woe,
My infant child, and lovely partner lost !

6, 10

Other ingenious general answers to the Enigmas, beside those inserted in the Supplement, were given by the following ladies and gentlemen, viz. John Ascroft, D. Barber, Tim. Bates, jun. J. Bayley, John Brookbank, J. Cairns, Tho. Coulson, Wm. Clark, B. Cleyle. H. Cedling. Tho. Coulterd, Wm. Cross, T. Davis, R. Dutton, Rev. J. Ewbank, John Fildes, Mrs. Furthast, A. G, B-d H-n, Jane Hales, Sam. Hervey, John Hawkes, Noah Heale, T. Heynes, Jos. Hindson, Wilos Hostman, G. H. I, J. Jackson, Eliza. James, John Johnson, Blanch Lean, Da. Lewis, Wm. Marriott, Narcissa. John Needham, Tho. Nield, Parthena, W. C. A. Alex. Rose, Rusticus, J. Savage, John Scholfield Mys Single, J. Sparrow. John Tindale, J. J. Thompson, Tho. Thorpe, jun. James Thoubren, Mary Verrall. Miss Wall, Jona. Walton, W. Ward, Wm. Watkins, Mary Wooler, Eliza Wright, &c.

ANSWERS to the REBUSES and CHARADES.

Rebuses.

Diary.	Sup.
1 Woolwich	1 Sanderson
2 Bayley	2 Madam
3 Babel	3 Mayday
4 Maken	4 Revel

Charades.

Diary.	Suppl.
1 Earthquake	1 Ear-ring
2 Something	2 Sonnet
3 Carmine	3 Haired
4 Kid-gloves	4 Friendship

1. By Mr. John Ascroft, of Barlaston.

'Tis Woolwich that Bayley does certainly mean,
And Babel and Maken two others explain ;
Earthquake and Carmine two more do unfold,
And Kidgloves may Something defend you from cold.

2. By Mr. John Bayley, of Middleton, Yorkshire.

There's Bayley, and Babel, and Maken,—besides
Woolwich, where the fam'd Dr. Hutton resides ;
An Earthquake, with Something, Kidglove, and Carmine,
Perhaps will each Rebus and Charade define.

3. By Mr. Ra. Dutton, alluding to the Cannon Foundry.

*Woolwich, seat of learning's pride,
Let us view thy other side.
Thund'ring engines with thee dwell,
Maken, Bay'ley both can tell,
Great as Earthquake is their pow'r,*

*Soon can level Babel's tower :
Sometimes cover fields with slain,
Oft the earth with Carmine stain,
Gloves of Kid may warmth impart,
Peace wou'd truly warm the heart.*

4. The Same: by the Rev. Mr. Erwbank, of Thornton Steward

*Woolwich, Bayley, Babel, Maken,
Solve the Rebus'es I'm clear:
Earthquake, Someting, Carmine, Kidgloves,
All charades will make appear.*

5. The Same: by Mr. Wilos Hoffman, near Newcastle.

Charades and Rebus'es again,
I have endeavour'd to explain,
And think I have succeeded :
But I am doubtful, tho' I write
Of Woolwich town, or Babel's height,
I still may not be heeded.
For, sure I am, that Bayley's name,
And Maken's too, must preſence
claim,
To mine scarce known before.

But, tho' I cannot rhyme like the
I'll do the best I can to please ;
The best can do no more.
When that is done, if I shou'd fail
My Carmine cheek will then turn p
As with an Earthquake's shock.
But if my ſtiffen'd lines appear,
As Someting says, they shall n
year,
I'll stand as firm as rock.

6. The Same: by Jacobus of Norwich.

I said I would anſwer the riddles, if able ;
So found out Kidgloves, Woolwich, Bayley, and Babel ;
Then Earthquake, and Someting, and Carmine came pat,
But the last was ſo queer, could Make nothing of that,

7. The Same: by Lavinus of Lancaster.

The Rebus'es, if I am not mistaken,
Are Woolwich, Bayley, Babel, and Miss Maken :
While Earthquake, Someting, Carmine, Kidgloves tell
The charades. — Ladies, till next year farewell.

8. The Same anſwered: by Narcissa.

I went with Miss Maken to Woolwich one day,
And our friend, Mr. Bayley, a visit to pay :
With a pair of Kidgloves her arms were array'd,
Her beauty ne'er call'd for Carmine to its aid.
Some buildings we ſaw, that with Babel might vie,
Their walls were ſo strong and their turrets ſo high :
But an Earthquake has tumbled these piles to the ground,
And nothing but ruinous heaps can be found.

9. *The Same: by Mr. Tho. Nield, Master of the Boarding School, Overton, near Wrexham.*

At *Woolwich*, *Bayley* likes to be,
And glad from *Babel* to be free;
At *Liverpool* with *Maken* chat,
Sometimes of this, and then of that;
Of *Earthquakes*, *Something* or another;
The *Carmine* features of his brother;

Of *Gloves* of *Kid*, or gentle doe,
How this thing thus, and that shou'd go;
Of winds and weather, stormy seas;
Of men of wealth, that take their ease;
Of love and lovers, how they die; [bye.
Then makes his bow, and says, good

10. *The Same: by Mr. Tho. Rimmer, Standish School.*

The first is *Woolwich*, is it not,
As *Bayley* tells the rebus?
The second's—bless me, I've forgot,
No, sure its not bright *Phæbus*.
The third is *Babel*, famed well,
In scripture's sacred pages;

The fourth is *Maken*, I can tell,
Who oft my mind engages.
Earthquake, *Carmine*, still remain,
And *Kidgloves* for sweet *Jenny*;
There's *Something* still—let's try
Why, nothing worth a penny. [again,

Other ingenious answers to the Rebus and Charades, beside those inserted in the Supplement, were also given by the following ladies and gentlemen, viz. *John Cairns*, *Tho. Coulson*, *Tho. Coulthard*, *Wm. Cross*, *P. S. Dale*, *T. S. Evans*, *John Fildes*, *Jane Hales*, *Sam. Harvey*, *Jos. Hatfield*, *Noab Heath*, *Tho. Heynes*, *Tho. Hindmarsh*, *Jos. Hindson*, *G. H. J.*, *J. Jackson*, *Eliza, James*, *John Johnson*, *Blanch Lean*, *Da. Lewis*, *Wm. Marriott*, *John Needham*, *Tho. Perrott*, *J. R. Alex. Rowe*, *John Savage*, *John Scholfield*, *T. R. Smart*, *John Smith*, *J. Sparrow*, *J. J. Thompson*, *Ja. Toubren*, *Mary Verrall*, *Wm. Ward*, *Wm. Watkins*, *Mary Wooller*, *Eliza Wright*, &c.

ANSWERS to the QUERIES.

QUERY I. answered by Mr. Jonathan Walton, Frosterly.

This query is the same in substance, as one proposed in the Supplement for 1797, which several correspondents answered, and, perhaps, rightly. However, as the proposer is not satisfied, I shall just offer the following conjecture.—The pope's mandates, from the Latin name of a ring, which was always annexed to them, derived the name of Bulls. And at the time of the reformation, when his supremacy in England was denied, perhaps, he might be denominated John Bull, through contempt.

QUERY II. answered, by Mr. J. Brown.

Early marriages seem to be the most conducive to human happiness, if the parties have a mutual affection for each other; for then the family comes on while the parents are most able to labour and provide for its support; and it

commonly goes off before old age makes its appearance; thereby giving the parties an opportunity of spending their latter days in peace and comfort, and of seeing their offspring educated and fixed in the world. Whereas, they who marry late, have a family of young children crying about them in their old age, and 'the cradle to rock in their woollen mittens,' as the old adage says, are, at least, in my opinion, in far less comfortable circumstances, than they who marry young, and certainly have not that chance of seeing their children settled in life.

Mr. Joseph Hindson says—The old adage, to be sure, observes, that 'It is never too soon to do well.' But I think that when persons marry young, they are brought into the care and management of a family, before they are capable of it: when, from want of experience in the world, which they might have gained by waiting till maturer years, very improper management is used, and fatal consequences are often the issue.

Mr. Ra. Dutton says—Early marriages, before fashionable vices prevail, must be most happy. To argue the contrary, would be attempting to make man wiser than his Maker! If the ages of 30, 40, or 50, had been more proper than puberty, nature would have continued dormant, or new faculties till that time. If a numerous family, and thereby poverty, in some instances follow, the former sweetens, and the latter does not imbitier, the life of a wise and virtuous couple.

QUERY III. answered, by Mr. Ra. Dutton.

It is well known that air contains a great portion of water: hence, falling drops of rain imbibe it continually more and more in their descent from the clouds to the earth; and so become probably both larger and more numerous; consequently the lower down, the more rain.

Mr. Thomas Squire says—The air at all times containing a great quantity of watery particles; which, at the time of rain, are precipitated from it, as is shewn by the hygrometer; those uniting with the drops of rain as they fall, must make the quantity caught at the bottom of any place, greater than at the top of it.

QUERY IV. answered, by Mr. W. Clark, Cam's Hall, Fareham.

When sounds, which are from equal causes given,
Progressive swell, decline, or form uneven;
The shifting course, and varying power of wind
And place, make all the difference we find.

Mr. Wm. Francis, jun. says—The sound of bells, at a distance, being heard more distinct at one instant than at another, must be owing to the changing, rising, and sinking of the wind, which is fickle to a proverb. And it is well known, that sound will be conveyed farther, and consequently more distinct, by a direct and strong gale, than by an adverse and gentle breeze.

Mr. Alex. Rose says,

'Hark, the sound of yonder bells
Trembles in the list'ning ear.'

| Now it rises, sinks and swells,
By commotions in the air.

NEW ENIGMAS.

I. ENIGMA (822) by W. C. A. Prestonensis.

ho' sprung not from the womb of earth,
With her I started into birth; [earth,
And oft'mid rocks and min'rals bound,
Within her caverns vast am found,
Yet ev'ry hour I change my place,
Thro'out immeasurable space.
The plaintive lute's persuasive note,
The warblings of the linnet's throat,
The brazen clarion's martial tone,
Alike my pow'ful influence own.
When great Columbus sought of yore,
Unheard of regions to explore;

I swift to his assistance flew,
And op'd new prospects to his view:
Yet oft, tho' call'd for, 'tis confess,
With dread I chill the seaman's breast.
Such is my influence from above,
Tho' me men live and breath, and move,
Tho' fill, so great my hurtful pow'r,
I murder thousands ev'ry hour.
I bid the show'rs refreshing fall;
'Tis I sustain this earthly ball:
In short, I make alive and kill,
The cause of mortal good and ill.

II. ENIGMA (823), by Mr. John Astcroft, near Newcastle, Staff.

Now, ladies, I pray, attend to the lay
Of one that is both deaf and dumb;
I never could see, as all will agree,
Yet thro' the wide world do I roam.

I never was seen, yet move o'er the earth,
A quick as an arrow doth fly; [green,
At nine I'm at York, at ten am at

Corke;
From earth I can reach to the sky.

If true, as they say, music drives me mad,
And never will let me intrude, [away;
So you may well know, to play I don't go,

My presence they'd think very rude.

At church I've a place, but 'tis a disgrace

If his reverence don't drive me away;

Most part of the week I hold there my seat,
But quit it on each seventh day. [seat,
If at school I attend, I'm deem'd as a friend,

Wherever fair science takes place;
Tho' schoolboys refuse, and me do abuse,
For which they get into disgrace. [base,

Philosophersold, as you have been told,
Have often implored my aid: [pray,
And then why shou'd they abuse me, I To whom divine honours were paid.

I'm older than Eve; you may well believe,

Hidden myst'ries never explain;
The court I do hate, abiding from debate,

Seven letters will tell you my name,

III. ENIGMA (824), by N. C. S. S.

Darian nymphs, I, with no hostile view,
In myst'ry veil'd, present myself to you;
Tho' loveliness I boast, forbear alarms,
Since I more potent render all your charms.
Where the bright Paphian queen, in beauty's pride,
Where Cupid and the graces too reside,
There, with Aurora's blushing tints I glow,
On banks of lillies, fair as virgin snow.
I, like resplendent sol, in splendor reign,
When from his lofty height he views the main,

Beaming on Thetis' breast his golden rays;
 But she, for want of me, few charms displays.
 Unrival'd is the mighty power I hold,
 The high, the low, the coward and the bold,
 All equal honor, equal homage, pay,
 Yet I'm unconscious of my sovereign sway.
 Great is my modesty, myself I screen,
 And by the public eye am seldom seen.
 Small is my bulk, I happily agree,
 In size and shape with the sweet raspberry;
 Lik'wise from me a liquid oft proceeds,
 That far the nectar of the gods exceeds.
 A little more I'll add, then bid adieu;
 Ye maids divine, I am a part of you:
 And man without me would not wish to live,
 I and my fair ally such rapture give.

IV. ENIGMA (825), by Mr. Tho. Coulson, Bolt's Biven.

Ye nymphs profound in comprehension,
 Who mystic guesses often mention,
 Deign to permit a suffering slave,
 In Lady Di a place to have.
 I o'er a numerous race preside,
 My empire is extended wide;
 You keep me to increase your store,
 Can any wish or covet more?
 Courage is grant'd as my right;
 I put my strongest foes to flight,

The lordly savage of the wood,
 That ranges o'er the plain for food,
 Wild fury burns in every vein,
 And bursts with trembling leave
 plain:
 Ev'n man, as holy writ declares,
 At he ring me was seiz'd with fits,
 And strange, tho' innocence my gage,
 I die by ignorance and pride;
 The vulgar, cruel, motley crowd,
 My death proclaim by shouts aloud.

V. ENIGMA (826) by Mrs. Furness, Heddon-on-the-Wall.

Admit, ye fair, a useful spight,
 Who in your service take delight,
 And like you strong from earth;
 By man was from her bowels torn,
 And brought to light—ill-fated morn,
 To signalize my wo th.

Two arms I have, a head and mouth
 That never eats, like mortal youth,
 On bread what's made of corn;
 Two eyes (pray, let not this alarm)
 Are nicely fix'd on either arm,
 And on my front a horn.

Should full engloom, with rueful mirth,
 Once threa'en dark to intervene,
 Your cheerful light to dim;
 I with undaunted courage rise,
 Then ope my mouth, to your sum,
 And tear him limb from limb.

One item more, and then adieu,
 My mouth's form'd in my side,
 I only feed on flame:
 My eyes, which in my hands you
 Are fix'd where my feet should be,
 So tell the world my name.

VI. ENIGMA (827) by Mr. H. W. Maprè.

O deign to hear
The tale of sad neglected worth !

Full many a year,
As playful fancy gave us birth,
Our tribe extended o'er the earth.

Amid the glare
Of birthday pomp how oft we shone,
A constant pair !

Nor yet to mighty kings unknown,
With them we grac'd the lofty throne.

Not splendid courts
Alone, our innate worth caref's'd ;

At rural sports
Each nymph and swain, tho' homely
dress'd,
Our merit due, with praise confess'd.

Pale hunger fled

The cheek of him by friends be-
reav'd

For daily bread, [ceiv'd,
From us ten thousand mouths re-
Nor lack of food the lab'rer griev'd,

But fashion's chance
Alas ! our wonted fame destroy'd !

In rural dance,
Or courtly pomp, no more were spy'd,
Wh're late with glitt'ring gems we
vied.

Ye gen'rous fair ! [beat,
Whose hearts with kind compassion
O hear our pray'r !
Once more our highest wish com-
plete,
And let us serve you—at your feet.

VII. ENIGMA (828), by Miss Caroline Martimer.

Start not, ye fair, at my terrific form !
I come not near you—sacred is the charm
Of worth and goodness—I the base attend,
And am the dark assassin's constant friend,
Companion rather—friendship's sacred name,
I and my followers have no right to claim :
Ambition's daring acts belong to me,
'Tis I that prompt revenge and tyranny,
And when the murd'rer aims the deadly blow,
I steel his heart alike to friend or foe :
My head cut off, you'll then my off'ring see,
The only offspring that e'er rose from me :
Revertie my name, ye fair, 'tis ten to one,
You'll see what your forefathers once have done.

VIII. ENIGMA (829), by Mr. David Roberts, of St. Columb.

In beauteous, spotless innocence array'd ;
Let me salute each fair diarian maid ;
Whose piercing eyes dark myst'ries can disclose,
Whose hands the lilly shames, and cheeks the rose ;
I who an emblem, ladies, am of you,
Fair in my form, as weak and transient too.
In winding valleys, where the woodlarks lay,
Salutes, with warbling strains, the rising day,

My mother dwelt, whose face for purity,
Might with the violet, or the primrose vie;
Down the high mountain's side she gently play'd,
And thro' the verdant meadows careless stray'd;
Till tir'd with roving, motionless she lay,
When lo! a gallant in the face of day,
As us'g traversing his daily round,
My mother in this guardless posture found,
When soon as on her he had cast his eye,
She quite unable to resist or fly,
An easy prey unto his pow'r became,
And o'er the mountains he convey'd the dame;
To distant regions marked as her own,
And left her on a wide umbrageous throne.

Now, in her gallant's absence from the north,
My father, his grand rival, iss'd forth;
With mighty power, and exceeding strength,
He found my dame, and conquer'd her at length;
And on her me begat, the mo her's child,
Fair, light, and airy, roving too and wild;
For soon as born my father's clime I left,
And fly'about, of every friend bereft;
Without the guidance of one friendly hand,
I safely reach'd my mother's native land.

Now, ladies, tell my name, and gain the prize;
Perhaps this moment I'm before your eyes.

IX. ENIGMA (830), by Mr. Wm. Wells, of Crowle.

Ladies, 'tis you that can unfold
The darkest things in riddles told,
When they come in your sight;
There's nothing yet that has been
But soon by you it has been spy'd, [try'd,
And quickly bro't to light.

Know then, I'm something—nothing
new,
So many times you do me view,
It may prove vain to try
To veil me in the darkest shade,
Who have so many times been laid
So very near your eye.

A spotless form I once possess'd,
And lay on Chloe's snow-white breast,
There met her soft embrace;
But now by age, frail beauty's foe,
I'm much debas'd, and bro't so low,
I scarce dare shew my face.

A strange reverse pervades my fram
From whence I've got another name
I'm deem'd a scavenger;
Yet mindful of my pristine state,
Still on my female friend I wait,
And their commands prefer.

Some of them rule with rigid sway
And tease me twice or thrice a day
Oft dash me in the face;
But gentler nymphs, with whom
dwell,
If once a week, I serve them well,
They think it no disgrace.

A useful servant it is said,
I'm to the town and village maid,
Yet each abuses me;
For wounds I in my body bear, [per
Thro' which both flesh and blood a
You many times may see.

I'm made a judge in doubtful strife,
Between the jarring man and wife,
When he forsakes his sphere;
He invades the woman's right,
Interfere—tho' out of sight,
And fasten on his rear!
Then, like a streaming flag display'd,
When men on women's rights invade
A signal to express;

I then expose such men to shame,
Who shou'd be master, wou'd be dame,
Their great officiousneis.
I've said enough my name to tell,
And that cook Molly knows right well,
For I've with her been free;
Oft we have been seen hand in hand,
And in a corner seen stand,
When we had liberty.

X. OR PRIZE ENIGMA (831), *by Mr. T. R. Smart.*

No more the muse attunes the Doic lay,
To chaunt the beauties of a vernal day;
Nor longer, led by rap'g fancy, roves
O'er flow'r-deck'd plains, or thro' the vocal groves;
Far different scenes and lonelier vi-ws the sings,
And strikes with plaintive tones the trembling strings;
Scenes, where no vivid tints of beauty glow,
But clouds and darkness close the dreary show.
In gaudiest robe, or humblest garment drest,
A glittering ermine, or a russet vest,
A monarch or a beggar I appear,
Or humbly dull, or haughtily severe;
Chief of my line, and ruler of my race,
Eldest by birth, and foremost fram my place:—
In lowly guise when I my visit pay,
Scarce notic'd then, in silence move away;
But if in majesty I issue forth,
'Midst clouds and whirlwinds of the gloomy north,
Big storms and tempests rude my steps attend,
And loftiest hearts in due submission bend;
Spread terror round, bid nature cease to smile,
And rush with fury thro' the shrinking isle:
Not when contending armies take the field,
And peace and plenty to confusion yield,
Where fate in thousand various forms appears,
And one sad day destroys the work of years,
When desolation's bloody flag unfurl'd,
Spreads gathering ruin o'er a weeping world,
Can vie with me inur'd to deal out death,
And scatter millions with my baneful breath;
While drops distill from every trembling pore,
'Prostrate they fall, to rise, al's! no more!—
Yet, tho' terrific, rude, unus'd to spare,
Unsooth'd by flattery, and unmov'd by pray'r,
My presence fury, and my progress sa e,
Thousands with heartfelt joy my coming wait;

Favor'd by George, in high esteem at court,
Where Britain's gemdeck'd fair with me resort,
Crown'd by the bard with honors which belong,
With plaudits prais'd, and usher'd in with song,
While circling raptures in each bosom burn,
And mutual wish my happy oft return.

Diarian friends, a lov'd, an honor'd train,
Accept the wish, nor may the wish be vain;
May grief not vex, or cank'ring joys annoy;
Long may you meet me, happily enjoy,
With sweet reflection temper o'er the past,
And taste each visit sweeter than the last.

NEW REBUSES, CHARADES, and QUERIES.

I. REBUS, by Mr. James Dick, Brick Lane.

One third of a queen, who in Egypt did dwell,
For beauty and valor none could her excell;
To one-third an affirm with a simple reply,
When spoken with truth no one ought to deny;
Then join five yards and a half to the same,
Will shew you a worthy Diarian's name.

II. REBUS, by Jacobus of Norwich.

The stream that flows thro' fair Italia's plains,
One fourth what ne'er began or e'er shall end,
Two thirds of grain well known to rustic swains,
Conjoin'd, will shew where charms innum'rous blend.

III. REBUS, by Miss Cha. Johnson.

To what's much in wear, add a united pair,
And first of what ne'er will decay;
Next what you will find, so religious inclin'd,
That it goes into church every day:
Impatient hail the tardy hour that brings
Love, wealth, or liberty upon its wings:

You'll then name a town, wherein may be found,
 A philosopher greatly rever'd ;
 By all who in learning has any discerning,
 Or e'er its sweet influence shat'd.

IV. REBUS, by Mr. Gilbert Young, of Spalding.

To the gods of the Sabines, of war, and of wind,
 Let Coru's god advance—the god of fear fall behind ;
 From these five pagan idols their capitals take,
 Then on : Christian mortal conjointly they'll make ;
 Who thro' poesy's paths leads miss Di by the hand,
 Presenting such flowers none else can command,
 Which the fair one receives, with her thanks for the same,
 And hands them with glee to the nymph, lovely Fame ;
 Begs a chaplet she'll form, as she knows the best how,
 Shall fit with eclat on the first giver's brow.—
 Fame flies to the task, and a garland is shewn,
 In which—laurels !—evergreens !—all are his own.

I. CHARADE, by Mr. J. Bayley, of Middleton.

In purest innocence my first's array'd,
 My second always of my first is made,
 At Christmas gambols oft my whole appears,
 And unexpected may salute your ears.

II. CHARADE, by Mr. William Gradidge.

Alarming first ! see conscience rise in arms,
 And nature shrink aghast with dire dismay :
 Upon my next we rest secure from harms ;
 Before you reach my whole—O ! learn to pray.

III. CHARADE, by Mr. Olinthus Gilbert Gregory, Cambridge.

When on the bed of lingering disease,
 A tender wife, or anxious husband sees
 A relative confin'd ; my first procur'd,
 And to the patient given, may help afford.
 Reader !, tho' now thou'rt young, and blest with health,
 With strength, with beauty, gen'rous friends, and wealth ;
 Should'st thou live long, alas ! thou yet may see
 My palsied neat approach, with poverty.
 When glitt'ring sol, the glorious orb of day,
 Unto the nether world has bent his way,

Then steel across the plain a worthless crew,
My whole the object which they have in view.

IV. CHARADE, by *Jacobus of Norwich.*

On my first see reflected the world as it goes,
In my next behold belles tête-a-têteing with beaux,
My whole thro' the island does rapidly glide,
And carries live beasts, birds, and persons inside.

I. QUERY, by *Mr. R. Dutton.*

Is it founded in nature, on reason, or merely on custom, that men generally make the first overture for matrimony.

II. QUERY, by *the Rev. Mr. Furness.*

If, as philosophers affirm, the moon be a dark opaque body, and has no light but what she receives from the sun, whence proceeds that dim light, by which she becomes visible, near the change.

III. QUERY, by *Medefham Beadensis.*

It is a received principle in the theory of musical sounds, that the shorter any body producing a sound, the quicker its vibrations, and the more acute the sound; how then is it to be accounted for, that if an empty glass be struck, and liquor be immediately poured in, the note, instead of being more acute, becomes graver, and continues to fall as the glass is filling, until the liquor has destroyed the vibration and the sound together?

IV. QUERY, by *Mr. Robt. Sanderson.*

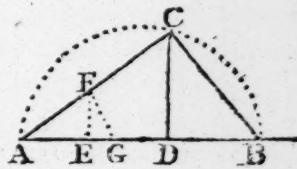
From what do we derive the name of Romances?

* * * It is again requested, that all Letters be sent within the limited time, otherwise they cannot be used, and post-paid, or they will not be received; that the several compositions be as short as may be with propriety: that the answers to the Enigmas, and to Rebuses and Charades never be given in the same composition, but the latter separate from the former, as they cannot be inserted together. Some letters that came too late, could not be noticed.

MATHEMATICAL QUESTIONS ANSWERED.

I. QUESTION (1044), answered by Mr John Hawkes,
Finedon.

Divide the given base AB in D , so as $AD : DB :: 25 : 16$, on which erect the perp. DC = the mean proportional between them, or = 20 of these parts. Join AC and BC ; so shall ABC be the required triangle. For $AC : BC :: \sqrt{AD^2 + CD^2} : \sqrt{BD^2 + CD^2}$
 $\therefore \sqrt{25^2 + 20^2} : \sqrt{16^2 + 20^2} :: \sqrt{25^2 + 20^2} : \sqrt{16^2 + 20^2} :: \sqrt{625 + 400} : \sqrt{256 + 400} :: \sqrt{1025} : \sqrt{656} :: 35 : 26$
 given ratio of the sides.



The same, by Mr Wm. Helydcock, Junr. Blackburn.

On the given base AB , as a diameter, describe the semicircle ACB ; on AB take $AE = 5$, and raise the perp. $EF = 4$; draw AEC ; then join BC , and let fall the perp. CD , and it is done.

For, the two right angled triangles $A E F$, $A C B$ being equiangular, it will be, as $A E : E F :: A C : C B :: 5 : 4$ the given ratio. Also, the angle C being a right one, the perp. $C D$ is a mean propor. between the segments $A D$, $D B$, by Hutton's Geom. Theor. 87.

The same, by Mr Henry Hunter, Anwick.

On the given base AB describe the semicircle ACB ; make AD to DB as 5 to 16; erect the perp. DC to meet the circle in C ; then join AB and BC , so shall ABC be the triangle required.

For, by the nature of the circle, $CD^2 \equiv AD \cdot DB$; and by constr. as $25 : 16 :: AD : DB :: AC^2 : BC^2$, conseq. $AC : BC :: 5 : 4$.

ingenious answers were also given by Messrs. James Ashton, A + B, Tim. Bates, Wm. Baylis, John Blackwell, Wm. Burdon, Hen. Clay, H. Codling, John Cohen, J. Collins, Tho. Coutherd, Jos. Cowley, Wm. Cropper, John Cragg, Wm. Davies, Wm. Eaton, Tho. Eley, R. Eliot, T. S. Evans, Rev. J. Erwbank, J. Farab. J. Forest, Wm. Francis, J. Furnass, A. Genderning, O. G. Gregory, Jas. Gale, J. Hartley, John Haycock, Gib. Henderson, Da. Henry, T. Hewitt, T. Hopper, Tho. Hornby, Cha. Johnson, John Latey, P. M. Laurent, J. Lucifer, Rob. Longdon, Ja. May, Wm. Middleton, Tho. Myres, Wm. Newby, Cha. Nichols, Cha. Pretty, John Ramsay, Wm. Robinson, Aug. Roullier, Alex. Rowe, John Ryley, John Scholfield Tho. Scott, Rev. Tho. Scurr, John Smith, Sam. Smith, Tho. Squire, John Surtees, Tho. Swanwick, Ja. Thoubren, Tho. Towan, W. Trumlin, Wm. Walker, Jos. Walton, Wm. Watkins, Jas. Wilson, Tho. Weed, Eliz. Wight, Wm. Wright, Jos. Youle, &c.

II. QUESTION (1045), answered by the Rev. J. Furness.

First, $5 + 7 + 9 = 21$; then as $21 : 252 :: 5 : 60 :: 7 : 84 :: 9 : 108$; theref. $60, 84, 108$ are the number of vibrations of each pendulum respectively. Now $39\frac{1}{8}$ inches being the length of the pendulum corresponding to 60 seconds, we have, by Dr. Hutton's Dict. art. Pendulum, as $84^2 : 60^2 :: 39\frac{1}{8} : 19.96$ inches, the length corresponding to 84 vibrations; and $108^2 : 60^2 :: 39\frac{1}{8} : 12.07$ inches, the length corresponding to 108 vibrations.

The same, by Mr Cba. Johnson.

First, $252 \div (5 + 7 + 9) = 12$, which multiplied by 5, 7, 9 separately, give 60, 84, 108, the numbers of vibrations made by each pendulum in one minute. Hence, as $80^2 : 60^2 :: 39\frac{1}{8} : 19.9628$, and as $108^2 : 60^2 :: 39\frac{1}{8} : 12.0756$ inches, their lengths as required.

The same, by Mr Tho. Scott, of Wigton.

As $21 : 252 :: 5 : 60$, the first number of vibrations;

as $21 : 252 :: 7 : 84$, the second ditto;

as $21 : 252 :: 9 : 108$, the third ditto.

Then, the lengths of pendulums being to one another reciprocally as the squares of the times of their several oscillations;

as $60^2 : 60^2 :: 39\frac{1}{8} : 39\frac{1}{8}$ the length of the first,

as $84^2 : 60^2 :: 39\frac{1}{8} : 19\frac{377}{392}$ ditto the second,

as $108^2 : 60^2 :: 39\frac{1}{8} : 12\frac{49}{648}$ ditto the third.

The same, by Mr John Smith, of Alton Park.

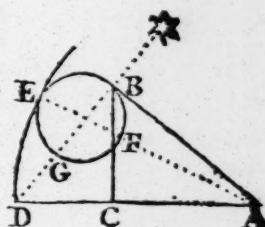
First, $5 + 7 + 9 = 21$. Then $21 : 252 :: 5 : 60 :: 7 : 84 :: 9 : 108$; so that 60, 74, and 108 are the vibrations made by each pendulum. Then, the length of the first, or that which vibrates 60 times per minute, is $39\frac{1}{8}$ inches; and the lengths of pendulums being to one another reciprocally as the square of the vibrations made in the same time, it will be as $(\frac{1}{60})^2 : 39\frac{1}{8} :: (\frac{1}{74})^2 : 19\frac{377}{392} :: (\frac{1}{108})^2 : 12\frac{49}{648}$ theref. $39\frac{1}{8}$, $19\frac{377}{392}$, and $12\frac{49}{648}$ inches, are the lengths of the pendulums required.

Ingenious answers were also given by Messrs. Ashton, A + B. Bates, Baylis, Blackwell, Bennell, Boulby, Briant, Burdon, Codling, Cohen, Collins, Coulverd, Cawper, Craggs, Cross, Davis, Eaton, Ely, Evans, Ewbank, Farrab, Forest, Francis, Gale, Gregory, Hartley, Hawkes, Haycock, Haydock, Henderson, Henry, Hewitt, Hpper, Hornby, Houlgate, Latey, Lockwood, Mason, Middleton, Myres, Newby; Nichols, Penglase, Perritt, Pritty, Ramsay, Robinson, Rech, Roullier, Rowe Ryley, Scholfield, Scurr, Simcock, Edw. Smith, John Smith, Sam. Smith, Surtees, Swarwick, Taylor, Thompson, Thoubren, Towan, Truman, C.W, Wade, Walker, Walton, Watkins, Wilson, Womerfley, Wood, Worthy, E. Wright, Wm. Wright, &c.

III. QUESTION

III. QUESTION (1046), answered by Mr Wm Burdon,
Acaster Malbis.

CONSTR. Take $AB = 3$ feet, the length of the cane, perp. to which draw $BG = 1.584$, on which as a diameter describe the circle $BEGF$, through the centre of which draw AFF , with which as a radius, and centre A , describe the arch ED , cutting BG produced in D , and join AD , which will be the shadow on the horizontal plane, or the angle at D the apparent altitude of the sun's upper limb, AB being the position and length of the cane. — For, letting fall the perp. BC , it is $AB^2 = AE \cdot AF = AD \cdot AC$, but $AE = AD$, theref. $AF = AC$; and conseq. $EF = BG = CD$.



The calculation from this construction is very obvious, giving the angle $ADB = 50^\circ 22' 38''$ the apparent altitude of the sun's upper limb; this, by allowing for semidiameter, refraction, and parallax, gives $50^\circ 6'$ the true meridian altitude of the sun's centre, whence (by pa. 9 vol II. Dr Hutton's Dict.) the required latitude is $53^\circ 16'$ north.

Nearly in the same manner is the construction given by Mr John Ryley, after the manner of the constr. in Hutton's Ditarian Miscel. vol. I, p. 84, to a similar question.

The same, answered by Mr Jas Ashton, Harrington.

Let AB be the cane, which is perp. to the sun's ray BD ; then DA will be the longest shadow, and DC is given. Put $a = AB = 3$, $b = DC = 1.584$, and $x = CA$; then $DA = b + x$, and since DBA is a right angled triangle, it will be, by sim. triangles, $b + x : a :: a : x$, theref. $x^2 + b^2 = a^2$, and hence $x = 2.310735 = CA$; then $DC + CA = DA = 3.894735$; hence $DA : \text{radius} :: AB : \text{fine } \angle D = 50^\circ 22' 41\frac{1}{2}''$; then, subtracting the sun's semidiam. $16' 5\frac{1}{2}''$, and $4''$ for refraction, gives $50^\circ 5' 50''$ for the sun's meridian altitude, compl. for zenith dist. is $39^\circ 54' 10''$
declination add $13^\circ 22' 0''$
gives the latitude $53^\circ 16' 10''$

Mr. O. G. Gregory, after a solution nearly the same as above, besides allowing for the sun's parallax, has this REMARK. It is, in the above solution, taken for granted, that the place is in or near the latitude of Greenwich: had the longitude been large, it must have been taken into the account. Thus, suppose the required place be in 75° of east longitude: in such long. the sun would be on the meridian when it was 7 o'clock in the morning at Greenwich, at which time (as may be readily computed by proportion) the sun's declination would be $4' 4''$ less than before, and the lat. so much less also, or equal to $53^\circ 11' 41''$.

Other ingenious solutions were given by Messrs. A + B, Baylis, Blackwell, Codling, Collins, Coultherd, Craggs, Davies, Dowdon, Eaton, Elliott, Evans, Ewbank, Farnell, Furnals, Gate, Gregory, Hartley, Hawkes, Haycock, Haydock, Henry, Hewitt, Hopper, Hornby, Hulgate, Hunter, Johnson, Kirtjen, Middleton, Newby, Nichols, Perratt, Pritty, Ramsay,

Roch, Robinson, Roullier, Rowe, Ryley, Scholfield, Scott, Smith, Squire, Surtees, Swanwick, Taylor, Thoubren, Truman, Turner, Walker, Walton, Watkins, Wilson, Wright, Youle, &c.

IV. QUESTION (1047), answered, by Mr F. Lockwood, at the Rev. T. Cusham's Academy, Sutton, near Mansfield.

Put $122 \div 40 \times 1077.157 = a$, $100 \div 40 \times 1077.157 = b$, $x =$ bung, and $y =$ head diam. then (by the rules in Dr. Hutton's Mensur. p. 522, 523, 1st edit.), $y^2 + 2x^2 = a$, and $y^2 + 2x^2 - \frac{2}{5}(x - y)^2 = b$; by subtracting these equations, &c. there is got $x = y + \frac{1}{2}\sqrt{10a - 10b}$, which being substituted for x in the first equation, and the quadratic resolved, gives $y = \frac{1}{3}\sqrt{5b - 2a} - \frac{1}{3}\sqrt{10a - 10b} = 2.019$. Hence $x = 40.503$: the bung and head diameters.

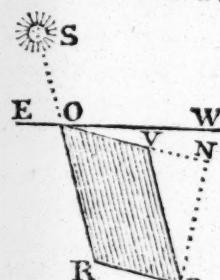
The same, by Mr John Ramsay, London.

Put the bung diam. $= x$, and the head diam. $= y$: then, by Hutton's Mensur. pa 575, 576, 2d ed. we have $(2x^2 + y^2) \times \frac{4^0}{1077} = 122$, and $(2x^2 + y^2 - (x - y)^2 \cdot 4) \times \frac{4^0}{1077} = 100$, subtracting the latter of these from the former, gives $(x - y)^2 \times 4 \times \frac{4^0}{1077} = 22$, which gives $x - y = 28.48$, or $x = 38.48 + y$; this substituted for x in the first equat. and reduced, gives $y^2 + 51.31y = 107.7$; hence $y = 2.02$ inches, and $x = 38.48 + y = 40.5$ inches, the two diameters required.

This question was also answered by Messrs. Abbot, A+B, Baylis, Bennet, Burdon, Charlton, Codling, Collins, Coulberd, Craggs, Davis, Dowden, Eaton, Evans, Ewbank, Farrah, Francis, Furness, Gale, Hartley, Hawkes, Haycock, Haydock, Henry, Herwitt, Hepper, Hornby, Mason, Middleton, Newby, Perrott, Pritty, Roch, Roullier, Rowe, Ryley, Scott, Smith, Squire, Surtees, Taylor, Thoubren, Truman, Walker, Walton, Watkins, Wilson, Wright, Youle, &c.

V. QUESTION (1048), answered by Mr Thos. Coultherd.

Let E W be an east and west line, O V N a part of the outside of the front wall, and O R P V the part enlightened. Put $b = 6\frac{1}{2}$, and $c = 3\frac{1}{2} = O V$. Then, from the data, the sun's azimuth from the south is found $2^{\circ} 33' 34''$, and the altitude of his centre $56^{\circ} 36' 52''$; and when $15^{\circ} 22''$, the difference between the semidiameter and refraction, is deducted, the remainder $56^{\circ} 2' \frac{1}{2}$ will be the altitude of his lower limb, whose tangent call a ; also the difference between the sun's distance from the east and the declination of the house, gives the angle R O N = P V N = $47^{\circ} 56' 26''$, the sine of which call n , then as $a : b :: n : \frac{b}{a} = P N$, and $\frac{b}{a} \times c = 11.24$, the number of square feet required.



The same, by Mr Tho. Hopper and Mr Jas. Thoubren, of Mr Rutherford's School, Lanchester.

The latitude, the declination and meridian distance being given, the sun's azimuth from the south, is found $= 25^\circ 33' 34''$, and central altitude $56^\circ 36' 52''$, or $56^\circ 20' 19''$ by correction for the sun's lowerlimb. Now, in the figure, the $\angle V P N = 16^\circ 30' +$ azimuth from the south $= 42^\circ 3' 34''$, and its complement $47^\circ 56' 26'' = \angle P V N$. Then as radius : $6\frac{1}{2} ::$ cos ang sun's alt. : $O R$ or $V P = 4.3286$ the length of the shadow on the floor; also as radius : $V P ::$ sine V : $P N = 3.2138$ the perp. length of the figure $O R P V$; hence $P N \times O V = 3.2138 \times 3\frac{1}{2} = 11.2483$ feet, the area enlightened, as required.

Ingenious solutions were also given by Messrs. Aston, Baylis, Blackwell, Burden, Chapman, Codling, Collins, Craggs, Davies, Dovden, Eaton, Ewbank, Farnell, Furneys, Gale, Hawkes, Haycock, Haydock Henry, Hornby, Johnson, Laurent, Middleton, Newby, Nichols, Peng'ale, Perout, Robinjon, Reullier, R'we, Ryley, Scott, Smith, Squire, Sartes, Swannick, Tayor, Town, Truman, Walker, Walton, Watkins, Wilson, Wright, Youle, &c.

VI. QUESTION (1049), answered by the Rev. Mr Ewbank, of Thornton-Steward.

In the adjacent figure, let P , Z , and S represent the pole, the zenith, and the sun, respectively. Also, let $a =$ the sine of 54° , $b =$ sine of 36° , and $x =$ tang. $\angle P$. Then, by spherics, $ax =$ tang. of ZS the coalitude. But, by trigon. and

the quest. $\frac{2ax}{a^2x^2 - 1} = x$; hence, by reduction,

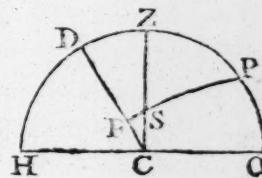
$x = \sqrt{\frac{2a + 1}{a^2}} = z$, the nat. tang. of $63^\circ 26'$ &c. the number of de-

grees from noon; and conseq. the sun's alt. was $31^\circ 43'$. Let $s =$ its sine; then, by spherics, the sine of the sun's declin. $= bs = .3090099$, sine of 18° nearly. Hence the apparent time of observation was $46\frac{4}{15}$ minutes past 7 o'clock in the morning of the 11th of May.

The same, by Mr Kinebrook, Jun. Norwich.

Let Z be the zenith, P the pole, and S the sun's place. Then, in the right-angled spherical triangle SZP , as sine ZP : radius :: tang. ZS : tang. $ZPS =$ tang. $ZS \div$ sine ZP . Now, per quest. tang. of twice comp. ZS or $\frac{2 \text{ radius square}}{\text{tang. } ZS - \cot. ZS} = \frac{\text{tang. } ZS}{\text{fine } ZP}$, hence tang. $ZS =$

$\sqrt{2 \text{ sin. } ZP + 1} = 1.6180339$, and $ZS = 58^\circ 16' 57''$, also the angle $P = 63^\circ 26' 6''$ answering to 7 h. 46 m. 16 s. in the morning, and PS the co-declin. $= 72^\circ$, which, if the observation was made in north lat. answers to the 11th of May, or 1st of Aug. at 7h. 46m. 16s. morning.



This question was also answered by Messrs. Ashton, Baylis, Blackwell, Burdon, Colding, Collins, Coultherd, Craggs, Cross, Dowden, Eaton, Evans, Ewbank, Farnell, Furness, Gale, Hartley, Hawkes, Haycock, Hopper, Hornby, Middleton, Newby, Nichols, Rees, Robinson, Roulier, Rowe, Ryley, Scott, Smith, Squire, Surtees, Swantwick, Thubron, Walker, Walton, Watkins, Wilson, Yule, &c.

VII. QUESTION (1050), answered by Mr T. S. Evans.

Put x = shortest side, t = tang. of 30° ; then $x + 2t$ = longest side, and $2x + 2t$ = 66 inches or $\frac{1}{3}$ the length of the whole plank; therefore $x = 26.64915$ the shorter side, and 39.35085 is the longer.

Note. This is a solution, taking the words of the question strictly; for then there will be no waste; the piece coming off one end must be put in wedge-ways.

The same, answered by Mr O. G. Gregory, of Cambridge.

This entertaining question may be answered in various ways; but perhaps the following practical method may be found as easy as any, and of service to the workman.

Suppose ABCD the plank of which the hexagonal seat is to be formed: let the line aw , along the middle, be divided into 6 equal parts, and on ae , one of these equal parts, let an equilateral triangle aef be constructed. Produce ee and ef to b and m ; then make md , dk , kr , each equal to twice ae ; also set off bb , bl , ug , gg , qs , sp , pt each equal to twice ae . Draw dg , kq , rs , which will evidently be parallel to mn ; also draw bp , lt , which will be parallel to bf . Fill up the space amA with anB , and twD s with vwC . Then the six pieces $mbnf$, $fgbd$, $dkgp$, $pqbk$, $klqs$, $tslr$ will be equal and similar to each other, and, when properly joined together, will form the hexagonal seat required.

To find the dimensions of each of these pieces, by calculation, it must first be considered, that aAm is half an equilateral triangle, of which Aa is given = $5\frac{1}{2}$ inches: then, as $\sqrt{3} : 1 :: AA : Am = \frac{1}{6}\sqrt{3} = 3.17542$ inches. To ae (= 33 inches) add double Am , the sum 39.35084 inches = $mb = fg = db$, &c.; and, from ae subtract double Am , the remainder 26.64916 inches = $nf = bd = gp$, &c.

The truth of the above method of cutting the plank, will be too obvious, after a little consideration, to need any formal demonstration.

The same, answered by Mr James Meson, of Clapham.

Let $AC = 11$ inches, the breadth of the board. It is evident that AB must be = $\frac{1}{2}BC$; therefore put $x = AB$, and $2x = BC$, then $3x^2 = AC^2 = 11^2$, or $x^2 = 33.333$, and $x = 6.35$; hence $16\frac{1}{2} \times \frac{1}{6} + 6.35 = 39.35$, the outer length of each side, and $16\frac{1}{2} \times \frac{1}{6} - 6.35 = 26.65$ inches the inner length of the same.

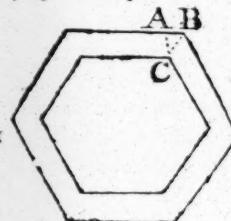


Fig. 212

Ingenious answers to this curious question were also given by Messrs. *AB*, *Afton*, *Bates*, *Baylis*, *Bennell*, *Blackwell*, *Burden*, *Charlton*, *Clay*, *Codling*, *Collins*, *Coultherd*, *Craggs*, *Cross*, *Davies*, *Dowden*, *Eaton*, *Elleker*, *Erbank*, *Farnell*, *Forst*, *Francis*, *Furnass*, *Gale*, *Hartley*, *Hawkes*, *Haycock*, *Henry*, *Hewitt*, *Hopper*, *Hornby*, *Hougate*, *Hunter*, *Johnson*, *Kinnebrook*, *Latey*, *Laurent*, *Middleton*, *Newby*, *Nichols*, *Penglase*, *Pritty*, *Robb*, *Robinson*, *Roullier*, *Rowe*, *Ryley*, *Scott*, *Scurr*, *Smith*, *Squire*, *Surtees*, *Taylor*, *Theubren*, *Truman*, *Turner*, *C. W.*, *Walker*, *Walton*, *Watkins*, *Wilding*, *Wilson*, *Wright*, *Yule*, &c.

VIII. QUESTION (1051), ans. by Mr. J. Collins, Schoolmaster, Kensington.

First $24 \times 7 \times 60 = 10080$ minutes in a week. Then as $10080 : 30 :: 60^2 : \frac{5}{28}^2$ gained per minute. Now the length of pendulums being inversely as the square of their vibrations in the same time, therefore $(60 \frac{5}{28})^2 : 60^2 :: 39 \frac{1}{2} : 38.893$ the length of the pendulum. Therefore $39 \frac{1}{2} - 38.893 = .232$ is the length to be added. Lastly, as 1 inch : 40 :: .232 : 9.18 rounds, or nearly $9 \frac{1}{4}$.

Mr. *James Gale* gives the solution exactly in the same way; and then remarks, that probably the proposer's pendulum is a compound one, in which case the correction will not hold good in practice.

The same, answered by Mr. W. Newby.

As 7 days : 30 min. :: 1 min. : .1785 of a second, what the pendulum gained per minute. Now, as $60 \cdot 1785^2 : 60^2 :: 39 \frac{1}{2} : 38.893$ the length of the pendulum; which being subtracted from $39 \cdot 125$, the remainder .2318 is what the pendulum is too short; which, at 40 rounds to an inch, will require $9 \cdot 272$ turns to make it keep true time.

Nearly the same was this question answered by Messrs. *AB*, *Afton*, *Bates*, *Baylis*, *Blackwell*, *Burden*, *Codling*, *Coultherd*, *Craggs*, *Cross*, *Davies*, *Dowden*, *Eaton*, *Eley*, *Evans*, *Erbank*, *Farnell*, *Forst*, *Francis*, *Furnass*, *Gregory*, *Hartley*, *Hawkes*, *Haycock*, *Henry*, *Hewitt*, *Hind*, *Hopper*, *Hornby*, *Hougate*, *Johnson*, *Kinnebrook*, *Lockwood*, *Mason*, *Middleton*, *Myers*, *Nichols*, *Penglase*, *Perratt*, *Pritty*, *Ramsay*, *Robb*, *Robinson*, *Roullier*, *Rowe*, *Ryley*, *Scott*, *Scurr*, *Simcock*, *John*, *Edw.* and *Sam.* *Smith*, *Squire*, *Surtees*, *Swanton*, *Taylor*, *Theubren*, *Turner*, *C. W.*, *Wade*, *Walker*, *Walton*, *Wilson*, *Wimerley*, *Wright*, &c.

IX. QUESTION (1052), answered.

Our Correspondents answer this question on two different principles, some on the supposition that the water spouts out in a direction parallel to the horizon, or perpendicular to the axis of the cone; and others, that it issues in a direction perpendicular to the side of the cone. And although this seems the more accurate, yet they both bring out the same conclusion. We shall insert two or three instances of each of these methods.

1. By Mr John Craggs, of Hilton.

Let ABV be the cone, its axis VC , and suppose D the place of the required point in the side, and DE perp. to the base AB , also FDG parallel to the same, but HD perp. to the side BV , which is the direction of the spouting fluid at D . Put $x = VF$, $s = \sin. \angle IDG$ or $\angle EDB$ or $\angle CVB = VB \div CB = 10 \div 26 = \frac{5}{13}$, and $c = \cos.$ of the same or $\sin. \angle B = VB \div VC = \frac{12}{13}$. By sim. tri. $VC : VB :: VF : VD = \frac{13}{12}x$; conseq. $26 - \frac{13}{12}x = DB$. Now, by mechanics (see Dr Hutton's Mathematics, vol. 2, p. 112) the oblique range or distance DB or $26 - \frac{13}{12}x = 4cx \div s^2$; hence it is found $x = 26 \div (\frac{4c}{s^2} + \frac{13}{12}) = \frac{650}{631} = 9983361$ of a foot $= VF$. Then, by sim. tri. $VC : VB :: VF : VD = 1.0815307$ the distance from the vertex.

2. By Mr T. S. Evans.

The principle of this question is, to find the position DE , so that FG may be equal $\frac{1}{2}EH$, supposing the water to issue out horizontally. By the property of the circle $FG^2 = DF \cdot FE$, and by hydrostatics $EH = 2FG = 2\sqrt{DF \cdot FE}$. Put $t = 2$ the tangent of the $\angle H$, and $x = EH$; then $t \cdot x = EF$, and $t \cdot 10 - x = DF$, also $x^2 = 4tx(10 - t \cdot x)$, or $x = 4t^2(10 - x)$; hence $x = 40t^2 \div (1 + 4t^2) = \frac{5760}{601} = 9.584$ nearly. Hence CF the distance of the hole from the vertex is $26 \div (1 + 4t^2) = \frac{650}{601} = 1.0815$.

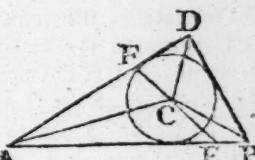
3. By Mr John Surtees, of Wearmouth.

DGB being the parabolic curve described by the water (see the 1st fig.) in the direction DI ; put $m = VC = 24$, $n = CB = 10$, $p = VB = 26$, and $x = KD = VF$. Then, by sim. tri. $DB = p(m - x) \div m$, also $m^2x \div p^2 = \frac{1}{4}$ the parameter of the parabola; then the distance on the inclined plane DB is $4\sqrt{p}x \div n^2$; hence $x = n^2m \div (4m^2 + n^2) = 600 \div 601 = 998336$ feet, and $DV = 650 \div 601 = 1.08153078$ feet, as required.

It was also ingeniously answered by Messrs. Ashton, Eriant, Burdon, Coddington, Cuthbert, Dowden, Eaten, Elliott, Ewbank, Farrab, Francis, Gale, Hartley, Haycock, Henry, Herwitt, Hornby, Hopper, Kinnebrook, Middleton, Newby, Ramsay, Roffshir, Robinson, Rouller, Rowe, Ryle, Scott, Smith, Taylor, Troubres, Truman, Walton, Watkins, Wilson, Wright, &c.

X. QUESTION (1053) answered, by Mr Da. Kinnebrook, Jun.
Norwich.

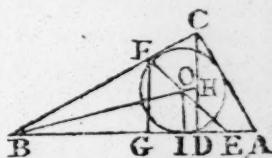
Let ABD represent the triangular estate, and C the centre of its inscribed circle; through which, by prob. 72 Simpson's Alg. draw EF = the given fence; then will the triangle AEF , and trapez. $EBDF$ be the parts required.



CALCUL. In the triangle ABD , are given all the sides, to find the $\angle A = 26^\circ 31' = 2\angle DAC$, and $\angle D = 100^\circ 57' 2'' = 2\angle ADC$; also, in the triangle ACD , are given all the angles, and the side AD , to find $AC = 3303.374$ links. Now, by the calcul. to prob. 72 Simpson's Alg. as $EF : AC :: \cos. \angle EAC$ or $FA : \cos. 60^\circ 45' 24''$, the half compl. of which is $14^\circ 37' 18''$; again, as $\tan. 14^\circ 37' 18'' : \text{radius} :: \sin. \angle EAC : \cos. \frac{1}{2} \angle F - \angle E = 28^\circ 28'$; but $\angle E + \angle F = 153^\circ 29'$, hence $\angle E = 48^\circ 16' 30''$, and $\angle F = 105^\circ 12' 30''$, also as $\sin. \angle E : AC :: \sin. \angle C : AE = 3890.5$ links; hence the area of the triangle $AEF = AE \times EF \times \frac{1}{2} \sin. \angle E = 2613314$ links = 26 ac. or. 21 p. and the trapezium $EBDF = 14$ ac. 2 r. 13 perches.

The same, by Mr John Hartley, Auditor's Office.

Let ABC be the given triangle, EF the given dividing line, and O the centre of the inscribed circle; also the other lines and perpendiculars as in the figure. Then there are given $EF = 18$ chains, $AC = 21.6$, $CB = 58.4$, and $AB = 47.5$. Now, having the sides of the triangle ABC , the angles and perp. CD are found by trig. viz. $\angle A = 51^\circ 58'$, $\angle B = 2^\circ 30'$, $\angle C = 101^\circ 32'$, and $CD = 17.14$ chains, the area = 40 ac. or. 34 p. likewise the segments of the base $AD = 13.14$, and $DB = 34.36$ chains.



Dividing the area by half the sum of the three sides, gives the radius OL of the circle = 7.57, also $BL = \frac{1}{2}AB + \frac{1}{2}BC - \frac{1}{2}AC = 32.15$, hence $AL = 15.35$, and $OB = \sqrt{BL^2 + OL^2} = 33.029$, which line bisects the $\angle B$. Now in the triangle EFB are given EF and the line OB which bisects the angle B ; then; by pr. 17 Simpson's Trigon. as $OB : EF :: \sec. \frac{1}{2} \angle B : \tan. \text{of an angle}$, and as $\tan. \text{of half that angle} : \text{radius} :: \sin. \frac{1}{2} \angle B : \sin. \angle BOF = 61^\circ 30'$, whence $\angle BOE = 11^\circ 30'$, and $\angle BEF = 48^\circ 15'$. In the triangle BFE , are given the angles and one side EF ; to find $BE = 38.92$. And in the right angled triangle EGF , are given the angles and one side $EF = 13.43$; from whence the area of $BFE = 26$ ac. or. 21 p.; conseq. the area of $ACFE = 4$ ac. 2 r. 13 p. which are the required parts.

Ober ingenious answers were given by Messrs. Ashton, Baylis, Burden, Codling, Collins, Couliberd, Craggs, Dewdin, Driver, Eatons, Evans, Furness, Gale, Glazdenring, Haycock, Henry, Hepper, Hornby, Houlgate, Latey, Mason, Middiston, Newby, Perrott, Pritty, Ramjay,

Ramsay, Rowe, Ryley, Scott, Smith, Squire, Surtees, Thoubren, Walker, Walton, Watkins, Wilson, Wright, Youle, &c.

XI. QUESTION (1054), answered by Mr P. M. Laurent, assistant at the Rev. Mr Whitaker's Academy, Southampton.

The latitude, day, and hour being given, the sun's azimuth is found to be $43^{\circ} 53' 48''$, and the apparent altitude of his upper limb, $46^{\circ} 57' 10''$ the length of the string, its angle with the plane of the horizon, &c. being given, the perp. height of the top of the kite is = 422.69 feet; supposing NS to be a meridian line, B the point where the vertical line that would pass through the top of the kite meets the plane of the horizon, D the place where the boy stands, DB the direction of the wind, and AC a line making with NS an angle = $43^{\circ} 53' 48''$ the azimuth, the shadow will be projected in the direction of AC, the \angle DBS, by the question = $22^{\circ} 30'$, DB is found by trig. = 239.99 feet, and if C be the extremity of the shadow, the vertical height and the sun's altitude being as above, BC is found = 394.85 feet; the sides BC and BD being given in the triangle BCD, as well as the \angle E, the suppl. of the \angle ABD, the side CD, for the required distance is found by trig. = 537.9 feet = 79.3 yards.

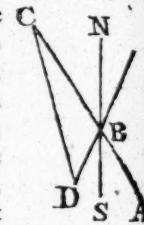
The same, answered by Mr John Ramsay, London.

In the triangle ABC, let A be the place of the boy, B where the kite was perp. C where the extreme part of the shadow met the earth. By plane trig. the perp. height of the kite above the boy's hand is, 415.692 feet; this + 4 + 3 = 422.692 feet, its height from the ground; and AB = 240 feet.—By spherical trig. the sun's true alt. in lat. $54^{\circ} 40'$ (at the time mentioned in the quest.) was $46^{\circ} 38' 3''$, this + 16' (= sun's semidiam.) + 54'' (= refr. c.) 7' (= parallax gives the apparent alt. of the sun's upper limb = $46^{\circ} 54' 50''$, and the angle the sun's rays make with the meridian + SS W being 2 points from south = $22^{\circ} 30'$, gives $66^{\circ} 22' 20''$ = the suppl. of the \angle ABC; then, by plane trig. AC is found = 538.485 feet, the distance required.

Ingenious answers were also given by Messrs. Ashton, Baylis, Burdon, Coding, Collins, Coulthard, Craggs, Davies, Dowden, Eaton, Ezebank, Fornell, Furness, Gale, Hartley, Haycock, Henry, Hornby, Hooper, Middleton, Newby, Nichols, Perrett, Nosh, Roallier, Rowe, Ryley, Scott, Smith, Spiers, Surtees, Taylor, Thoubren, Town, Turner, Walker, Walton, Watkins, Wilson, Wright, Youle, &c.

XII. QUESTION (1055), answered by A + B.

Without finding the size of the plantation, it is easy to conceive that (since the ditch is to be 2 yards wide and $1\frac{1}{2}$ yard deep) there will be 3 solid yards of ditching for every yard of the mean length; and as the price by the solid yard is $\frac{1}{3}$ of that by the running yard, the expence will be the same either way.



The same, answered by Mr J. Farrah, Tottenham.

The owner may accept of either proposal, for they are exactly equal; because the breadth 2 yards $\times 1\frac{1}{2}$ the depth, and by one length, gives 3 yards, which at 2 pence the yard is the same thing as 6 pence per yard in length. The whole expence will be 8l. 15s. 11d.

The same, by Mr O. G. Gregory, Cambridge.

The area of a circular ring being found by multiplying the circumference which runs thro' the middle of the ring, into the breadth of the ring; it is obvious that the solid content of the ditch will be found by multiplying the circumference along the middle of the ditch into the breadth of it, and that product into the depth of the ditch: therefore in the present case, the circumference along the middle $\times 2 \times 1\frac{1}{2}$ = the circumference along the middle $\times 3$, will be the solid content of the ditch. Hence the number of cubic yards in the ditch is equal to thrice the number of lineal yards in the equitable circumference, along the middle of the ditch; and consequently, as the proposal by the solid yard is 2 pence, one third of 6 pence, the proposed price per lineal yard, the one proposal is no more in favour of the owner than the other.

If it were required to find the expence of making the ditch, it might be effected thus. A chord and versed sine of the circle being given, the diameter may be found by means of the following proportion: as 1 (the versed sine) : 2 (the half chord) :: 2 : 4 the suppl. versed sine, hence 5 chains or 110 yards, is the diameter of the circular plantation. To 110 add 2, the sum 112 mult. into $3\cdot141593$ gives 351.8584 yards, for the running equitable circumference, which at 6d. per yard, amounts to 8l. 15s. 1d. the expence of making the ditch.

Ingenious answers were also given by Messrs. Afton, Bates, Baylis, Bennill, Blackwell, Burdon, Codling, Collins, Coulterd, Craggs, Davies, Dowden, Eaton, Elleker, Erwbank, Evans, Francis, Furneys, Gale, Hartley, Hawkes, Haycock, Holford, Henry, Hewitt, Hopper, Hornby, Hunter, Johnson, Jones, Kinnebrook, Laurent, Lockwood, Mayon, Middleton, Myres, Newby, Nichols, Penglje, Perrott, Romjay, Rock, Robinzon, Roullier, Rose, Ryley, Schofield, Scott, Scarr, Smith, Squire, Surtees, Taylor, Thoubren, Town, Truman, Turner, Wade, Walker, Walton, Watkins, Wilton, Wood, Womeryley, Wright, Youle, &c.

XIII. QUESTION (1056), answered by Mr Wm. Francis jun.

First, $.5236 \times 4^3 = 33.5104$ inches, the ball's content. And, according to Dr. Hutton, a ball of cast iron, 4 inches in diameter, weighs 9lb, theref. $9 + 11 = 20$ the weight of the ball and vessel together, conseq. $60 - 20 = 40$ lb. or 480 ounces, is the weight of the water alone; then as $1000 : 1728 :: 480 : 1105.32$ cubic inches, is the content of the water; theref. $1105.32 + 33.5104 = 1139.4304$ is the content or capacity of the vessel; hence $\sqrt{\frac{1139.4304 \times 2}{7854}} = 14.2629$ inches is the vessel's diameter, and conseq. 7.13145 its depth.

Now

Now let x = the thickness of metal; then $14.2629^2 \times 78.54x = 159.77417x$ is the solidity of the bottom, and $14.2629 + x \times 3.1416 = 44.80832664 + 3.1416x$ is the mean or middle circumference, hence $44.80832664 + 3.1416x \times 7.13145 + x \times x = 319.548x + 67.2125x^2 + 3.1416x^3$ is the solidity of the upright sides, therefor. $159.77417 + 319.548x + 67.2125x^2 + 3.1416x^3$ is the whole solidity of the metal. Then as $9000 : 11 \times 16$ or $176 :: 1728 : 33.792$ inches, the solidity by spec. gravity; conseq. $3.1416x^3 + 67.2125x^2 + 479.3225x = 33.792$ or $x^3 + 21.39435x^2 + 152.57273x + 362.68828249 = 10.7563 + 362.68828249$ by dividing by 3.1416 and completing the cube. Hence $x + 7.13145 = 7.201268$ by evolution, and $x = .069818$, the thickness of the metal.

The same, answered by Mr James Gale, London.

A cast iron ball of 4 inches diameter is 9lb. = 33.5104 cubic inches; the copper in the vessel is 11lb. = 33.792 cubic inches, which put = 4 there were also 4clb. of water in the vessel = 1105.92 cubic inches; there $1105.92 + 33.5104 = 1189.4304$ is the inner content of the vessel, which call i ; also put $n = 7854$, and d = the depth of the vessel; then $i =$ the inner diameter, and $4 \frac{d^2}{4} n =$ area of the bottom inside. Again $4d^2 n = i$, hence $d = \sqrt[3]{i} \div 4n = 7.1315$ the inner depth, and conseq. $2d = 14.263$ is the diameter.

Put z = the thickness of the copper; then $2d + 2z =$ the outer diameter of the bottom, and $2d + 2z)^2 \times n$, or $d + z)^2 \times 4n =$ the area of the bottom on the outside, and $d + z)^2 \times 4n \times d + z$ or $d + z \times 4n =$ the whole content = $i + c$, or $d + z^3 = i + c \div 4n$, and $d + z = \sqrt[3]{i + c} \div 4n = 7.2013$; then $7.2013 - 7.1315 = .0698 = z$ the thickness of the copper.

This question was also answered by *Messrs. A + B, Amicus, Bate, Bennell, Blackwell, Burdon, Codling, Coultherd, Craggs, Davia, Dowden, Eaton, Eley, Ellerker, Evans, Ewbank, Farrah, Furness, Gregory, Hartley, Haycock, Henry, Hewitt, Hopper, Hornby, Houlgate, Hunter, Johnson, Jones, Kinnebrook, Laurent, Lockwood, Manan, Mason, Middleton, Newby, Nichols, Penglaje, Perrott, Pritty, Rawlays, Reeb, Robinson, Roulier, Ryley, Scott, Scurr, Smith, Squire, Sutcliffe, Swarwick, Taylor, Theubren, Towan, Truman, Walton, Walker, Watkins, Wilson, Wright, Ycole, &c.*

XIV. QUESTION (1057) answered by *Amicus*.

Since the stone makes 750 revolutions in a minute, the veloc. at its circumf. is $3.14159 \times 37\frac{1}{2}$ feet in a second; let this = c , also $2g = 32\frac{1}{2}$ = gravity, the radius of the stone $\frac{3}{2} = a$, $p = 3.14159$, w = the stone's weight, l = the thickness, r = any variable radius or dist. from its centre, $m = pr^2 l$ = the mass of that part whose radius is r ; so shall the velocity at the dist. r from the centre be $\frac{cr}{a}$, and $\frac{c^2 r}{a^2}$ = the centrif. force

that distance, which mult. by $m \times \frac{1}{2g}$, give $\frac{pc^2l}{2ga^2} \times 2r^2r$ the fluxion of the centrif. motive force; whose fluent $\frac{pc^2l}{2ga^2} \times \frac{2}{3}r^3 = \frac{c^2r}{2ga^2} \times \frac{2}{3}m$, which when r becomes $= a = \frac{3}{2}$, gives $\frac{c^2m}{2ga^2}$, or, expounding m by the given weight of the stone, $\frac{c^2w}{2ga^2} = w \times 191.761$, that is nearly 192 times the weight of the body acts on the axis.

The same, by Mr Wm Eaton, jun. Sutton on the Hill.

Put $d = \frac{2}{3}$ of 3 feet = 2 feet, the diam. of the circle of percussion, $t = 60 \div 750 = \frac{2}{25} = .08''$ the time of one revolution, $q = 3.1459$, and $= 16 \frac{1}{2}$; then will $q^2 d \div st^2 = 191.75$, which mult. by 5 cwt. gives 958.7 cwt. or 47.9375 ton, for the centrifugal force required.

Ingenious answers were also given by Messrs. Bates, Burdett, Codding, Collins, Craggs, Davis, Eriobink, Furness, Hewitt, Hopper, Hornby, Kinnebrook, Middleton, Roullier, Rowe, Ryley, Scott, Scurr, Smith, Swarby, Swanwick, Taylor, Thoubren, Watkins, Wilson, Wright, &c.

XV. OR PRIZE QUESTION (1058), ANSWERED BY AMICUS.

Suppose it done, AVB the triangle, VP the p. rp. the centre of the inscribed circle, touching the sides in C, D , and E . Bisect the base AB in m . Then, since $AV - AP$ and $BV - BP$, the sum of these two differences = the diff. between the sum of the sides and base = $2VD$ is given. Also the diff. of these differences = $BP - AP + AV - BV = 2Pm - 2Cm = 2CP$ is given, also $OC = CD = CE$ and VO are given; hence in the right-angled spherical triangle PCO , CP and CO are given, and conse $q.$ OP , the angle OPC and its compl. OPV are given, and conse $q.$ the triangle VOP is given.

Ergo Solutum. For having on the legs of the given $\angle V$, taken $VD = VE =$ half the sum of the two given differences, and constructed the triangle VPO according to the analysis, through P , perp. to VP draw AB and AVB is the triangle required.

The same, by the Rev. J. Furness, Heddon on the Wall.

CONSTR. Draw two circles of equal curvature including the given vertical $\angle V$, and take VE , VD each equal to half the sum of the two given excesses; erect the two perps. DO , EO , and from the centre O , with two radii, the one $= DO$ or EO , and the other $=$ half the diff. between the two given excesses, describe two circles; to touch the latter of which draw VP , and parallel to it the radius OC ; through C draw the tang. CPA , and AVB will be the triangle required.

DEM. Because $VD = VE =$ half the sum of the given excesses, and $OP = OF$

$OF =$ half their diff. be contr. and the parallelism of the lines OC , VP ; theref. $AV - AP = VP + CP$ the greater excess, and $BV - BP = VE - CP$ the less, which is well known.

NOTE This prob. in piano, is quest. 114 of Dr. Hutton's Math. Miscel. and, by substituting great circles for right lines, this may be solved like that as above.

We are sorry there is not room to insert some of the other ingenious solutions given by Messrs. Wm. Burdon, J. Collins, Tho. Coultherd, John Cragg, Rev. J. Ewbank, James Gale, A. Glendinning; O. Gregory, John Harris, T. Hewitt, Tho. Hornby, John Howard, Henry Hunter, Da. Kinnebrook, jun. John Lowry, Wm. Middleton, John Rees, John Ryley, Tho. Scott, J. H. Swale, James Thoubren, Wm. Watkins, &c.



NEW QUESTIONS.

I. QUESTION (1059), by Miss Sarah Cowen.

What is the length of that arch, whose tangent is equal to three times its sine, the radius of the circle being 10?

II. QUESTION (1060), by Mr Isaac Rowbottom.

To a beautiful fair, of talents most rare,

My ardent addresses I paid;

But her answer was, unless from below,

I would find out x , y , and z .

Then her hand and her heart, to me she'd impart,

And in wedlock's firm bands wou'd entwine:

So, ye generous fair, to you I repair,

To show how this nymph may be mine.

III. QUESTION (1061), by Mr Wm Featherstonhaugh, Lambton.

If two circles touch each other; and a right line be drawn to touch both the circles, and terminate at the point of contact; then will the square of the said line, be equal to the rectangle of the diameters of the two circles. Required the demonstration.

IV. QUESTION (1062), by Mr James Gale.

To find n , when $n^2 + 13$ and $n^2 - 13$ are both rational squares.

V. QUESTION (1063), by Mr David Henry.

In latitude $54^{\circ} 42'$ north there is a plane, which declines from the south toward the west 20° , and reclines from the zenith 30° ; I desire to know what angle the rays of the sun made with that plane, on the 22d of December 1798, at ten o'clock in the morning, solar time; regard being had to refraction.

VI. QUESTION

VI. QUESTION (1064), by Mr Wm Burdon, *Acastor Malbis.*

The three sides of a triangular field being 3, 6, and 7 chains, now it is required to draw a right line from the greatest angle to its opposite side, so that it may divide the inscribed circle into two parts, which shall have to one another the ratio of 3 to 1; and to find the areas of the parts the triangle is divided into by the said line.

VII. QUESTION (1065), by Mr Wm Middleton, *Hollana.*

Three men, A, B, C, bought a field, in the form of an ellipsis, the greatest length being 1260 links, and breadth 840, for the sum of 150l.; of which A paid 40l. B 50l. and C 60l. Now A is to make the fence separating his own ground from that of B, and B the fence between his own ground and that of C; for which each is to be allowed after the rate of 4d. per yard running, from the joint estate. Hence it is required to divide the field equitably among them, by fences parallel to the conjugate axis; B's share lying in the middle.

VIII. QUESTION (1066), by Mr John Hawkes, *Finedon.*

Admitting the earth to be a perfect sphere, whose circumference is 25000 miles, which it is very nearly; how many acres of its surface may a person view by walking 100 miles on a great circle of the sphere; supposing the height of the eye to be $5\frac{1}{2}$ feet above the path, and having nothing but the earth's convexity to obstruct his view?

IX. QUESTION (1067), by Mr Tho Coultherd,

I observed a rectangular looking glass 18 inches in length, and 12 in breadth, by the light of a candle, to reflect a quadrilateral figure on the side of the room, at right angles with that against which the glass was suspended by the middle of the upper frame. Now supposing the nearer edge of the glass to be 18 inches from the intersection of the sides of the room, the candle at 72 inches distance from the corner of the other edge, but in a horizontal plane 15 inches below the said corner, and 36 inches from the wall on which it hung; I desire to know how many square inches the reflected figure contained, admitting the glass to be level with the paper of the room.

X. QUESTION (1068), by Mr Tho Farnell, *Norwich.*

My garden is of a rectangular form, containing $112\frac{1}{2}$ square yards, the sides of which are in the ratio of 2 to 1, and the longer side declines from the south towards the west 15 degrees, being inclosed on all sides except at the end towards the east. Now, I, one day, observed the shadow of the wall on the southern side (which is $11\frac{1}{2}$ feet high) to make a complete diagonal to the garden. Required the true time of observation; the latitude of the place being $52^{\circ} 45'$ north.

XI. QUESTION (1069), by Mr Wm Marrat, *of Boston.*

Suppose a ball of cast iron, having fallen from an infinite height, in air of the same density as at the surface of the earth, had acquired a uniform velocity of 7.285 feet per second, it is required to find the diameter of the ball; the specific gravity of cast iron, and air, being 7425, and 1.15th.

XII. QUESTION

XII. QUESTION (1070), by Mr. Wm Newby.

On Sept. 4, 1799, in the latitude of $54^{\circ} 32'$ north, at 9 o'clock in the forenoon, the area of the shadow of an upright cone, on a horizontal plane, was 8 feet. Required the dimensions and content of the cone, the diameter of the base being double the height.

XIII. QUESTION (1071) by the Rev. J. Furniss, Heddon on the Wall.

If a regular polygon of 6 sides, and area 72 feet be supposed to turn round the produced diameter of its inscribed circle, or the greatest or central diagonal of the hexagon, as an axis: Query, the superficies and solidity of the solid generated by one revolution of the polygon.

XIV. QUESTION (1072), by Mr. John Sartees, Wearmouth.

Mr. Emerson, at pa. 26 of his Trigonometry, has determined the sine of 180° by a cubic equation. Now the same may be done by quadratics. Query how?

XV. or PRIZE QUESTION (1073), by Captain Mudge, Royal Artillery.

In the Trigonometrical survey now carrying on, it is highly necessary that the values of all the elliptic arcs, on the earth's surface, in directions oblique to the Meridian, should be known. It is, therefore, proposed to find some convenient expressions, by which the several values of their degrees may be determined: and, by way of example, let the length of the oblique arc which passes through Dunnose and Beachy Head be found, the point on the arc being that where it cuts the meridian at the former place, the latitude of Dunnose being $50^{\circ} 37' 7''$, and the length of the degree of the meridian and great circle perpendicular to it 60850 and 61182 fathoms respectively. And the angle which Beachy Head makes with the pole = $81^{\circ} 56' 53''$ —Vide Philos. Trans. 1795, Part 2 pa. 519.

* * * The prizes for the several solutions have been determined by Lot as follows: First, for the Prize Question, to the Rev. J. Furniss and Mr. J. Riley each 10 Dairies. —2d, for the Prize Enigma, to Mr. Wm. Francis, and Mr. J. Thoubren, each 8 Dairies. —3d, for the General Answers to the Enigma, to Mr. Tho. Hindmarsh, and Mr. Wm. Middleton, each 8 Dairies. —4th, for the Rebuses, Queries, &c. Mr. Tho. Neill and Mr. Tho. Truswell, each 6 Dairies: All of whom will please to send same person in London to call for them, on their account, at Stationers Hall.

Pieces for the use of the Diary, to be directed thus, viz. To the Author of the Ladies' Diary, Stationers Hall, London. The letters to be all post-paid or franked, otherwise they will not be received; and the last of them to be sent, at the latest, before the end of April, otherwise they cannot be inserted; but those for the solution of the Prize Enigma and Prize question before Candlemas Day. And along with all new Questions, Enigmas, Rebuses, and Charades, their answers must be sent.

F I N I S.



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